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Clark College



Announcement
of
Pre-Professional Programs

1920-1921

ANNOUNCEMENT
OF
PRE-PROFESSIONAL PROGRAMS

1920-21

CLARK COLLEGE
WORCESTER, MASS.

Pre-Professional Programs

Offered at Clark College

1920-21

For those students who come to college with the purpose of laying the necessary foundations for later professional study as well as obtaining the more general values of a college course, Clark offers the following pre-professional programs, which are intended to lead up to later technical studies in the same way that current pre-medical courses lead up to the studies of the medical school and hospital. These programs, while permitting a considerable degree of concentration, have been made to conform to the requirements of the College for the A.B. degree, and that degree will be conferred on their satisfactory completion. Still further concentration, when of advantage in special cases, may also be permitted. The programs outlined are, of course, by no means the only ones by which preparation for later professional study can be obtained even at Clark, but they represent the mature judgment of competent members of the Faculty and are confidently recommended as the best which Clark can offer to boys of the usual high school training. Some change, though slight, in the subject matter of courses listed may be made necessary from time to time through changes in the subjects offered by different members of the College staff, and some changes in sequence by the fact that certain courses are given in alternate years.

Pre-Engineering Program

There is now a growing tendency to make the study of engineering a strictly postgraduate course like law and medicine, and many of the most competent engineers have recommended that those about to enter the profession should lay for their technical study as wide a basis of general culture as possible. With this end in view the leading technical schools offer a certain amount of training in non-professional subjects. For students, however, who desire more than the minimum thus to be attained the best plan is to graduate first from an academic college and then to enter the technical school at the point at which professional as

opposed to preliminary work is begun. With a properly selected program an able student can thus cover both courses and obtain both degrees in five years' time—three years, for example, at Clark for the A.B. and two years more at a high grade school of technology or polytechnic institute for his engineering degree. In more detail—since the engineer has to deal not only with materials and forces acting upon them but also with questions of business efficiency and the handling of large bodies of men, it is of importance that in addition to a mastery of physics and mathematics he should also know something of economics and psychology, while for meeting and influencing those in responsible administrative positions he needs general cultivation and a command of clear and forcible English. To meet these needs the following program has been arranged:

Pre-Engineering

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Math. 1 or Math. 8 & Physics 11	12	Mathematics 2	6	Mathematics 3	6
Chemistry 1 or 2	6	Physics 1	9	Mathematics 6	6
Economics	6	Physics 4	3	Physics 4	3
English 1	6	Chemistry 3	6	Physics 6	3
Foreign Language	6	Elective in Eng.	6	Physics 7	6
		Foreign Language	6	Psychology	6
				Foreign Language	6

The "hours" are semester hours of class work or its equivalent. To find the number of periods per week divide by two.

The courses listed are briefly described on pp. 15-18 of this circular.

Pre-Professional Program for Industrial Chemistry

This program is primarily intended for students who expect to follow chemistry as a profession. Students in doubt as to their future career, but who wish to major in chemistry, should enroll in the regular course, as it is possible in the regular course to get sufficient chemistry to enable them to specialize in this subject later should they so desire.

It is the purpose of the program for Industrial Chemistry to provide a logical sequence of courses in chemistry and those correlated subjects essential to a thorough foundation for advanced work. At the same time provision is made for sufficient distri-

bution to provide as liberally as possible for the requirements of general culture. It is impossible to devise a program which shall provide fully within three years both a liberal education and sufficient special training to produce a thoroughly trained chemist. The program here outlined is essentially *pre-vocational* in its aim. All students expecting to become professional chemists are urged to take at least one year of graduate work in this subject. For the student who cannot possibly look forward to a fourth year, however, completion of the full program,—with the maximum amount of chemistry,—should make possible the obtaining of an industrial position after graduation.

Exact distribution of work in this course will vary somewhat in individual cases. In general, the following distribution will be considered the normal arrangement for the full course: Chemistry, 36 semester hours. (This may be increased in case of special need.) Physics, 18 hours. Mathematics, 6 to 12 hours. English, 12 hours. Foreign language, 6 to 18 hours, depending upon previous language work. Elective, chiefly from Division B, 12 to 30 hours.

The normal yearly distribution of this work is as follows:

Industrial Chemistry

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Chemistry 1 or 2	6	Chemistry 3	6	Chemistry 6	12
Math. 1 or Math. 8 & Physics 11	12	Chemistry 4	6	Chemistry 7	
English 1	6	Chemistry 5	6	Chemistry 8	
French or German	6	Physics 1*	9	Chemistry 10	
Elective	6	Physics 4†	3	Chemistry 11	24
		Elective	6	Elective	

The courses listed are briefly described on pp. 15-18 of this circular.

Choice of electives will be somewhat determined by individual requirements. For example, students requiring 2 years of modern language will find it advantageous to use the second year elective for modern language, taking the prescribed course in English in the Senior year. Otherwise the second English course should be taken in the Junior year. The Freshman elective should normally be chosen from the required Division B work.

* Students who have taken Mathematics 8 and Physics 11 during the freshman year may substitute Physics 12, 6 hours, and 6 additional hours of elective work for Physics 1 and 3.

† Students who have not satisfied the requirements in foreign language by the beginning of the Senior year must substitute modern language for part of the work in Chemistry during that year.

Facility in reading both French and German is a necessity for graduate work in chemistry. The language departments of the College offer desirable courses in Scientific French and Scientific German.

Some knowledge of calculus is also essential for all who expect to do graduate work in chemistry, and highly desirable for all others.

Students interested in chemistry are urged to consult the instructors of this department in planning their courses.

Pre-Professional Programs for Law, Business, Foreign Commerce, and Social Service

The following programs of a pre-professional nature are suggested by the Department of Political and Social Science. They are believed to include the best combination of subjects offered in Clark College for men who plan to enter the professional pursuits indicated. In addition to these four programs it would be feasible to make up a similar combination of subjects for men who planned to enter the service of municipal governments, a growing field of highly valuable service.

Of the four professions for which these programs give a foundation, that of Law has long attracted a large proportion of college men. The others, however, are rapidly growing in favor—especially is this true of Business. The analysis of business organization and methods has tended to change the business career from one where “trial and error” and “rule of thumb” methods predominate to one in which expert knowledge and training are essential. Moreover, American industrial development is now at a point where rapid growth of foreign trade seems essential for future prosperity. The opening of Schools of Business, and Schools of Commerce and Finance has made possible the expert training now so necessary. The programs of study outlined below under the headings Business and Foreign Commerce provide a broad foundation for future technical training in business methods whether one plans to go into business management, banking and finance, or trade and commerce.

Law

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Pol. & Soc. Sci. 1	6	Pol. & Soc. Sci. 2	6	Pol. & Soc. Sci. 15	6
History 1	6	Pol. & Soc. Sci. 3		Pol. & Soc. Sci. 16	6
English 1	6	and 4	6	Philosophy 2a & 2b	6
English 7	6	History 5	6	Foreign Language	6
Foreign Language	6	Psychology 1	6	Elective in	
Elective in Science	6	Foreign Language	6	English Literature	6
				Elective in	
				Psychology	6

Business

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Pol. & Soc. Sci. 1	6	Pol. & Soc. Sci. 3 & 4	6	Pol. & Soc. Sci. 7 & 8	6
History 1 or 6	6	Pol. & Soc. Sci. 5 & 6	6	Pol. & Soc. Sci. 9 & 10	6
History 13	6	History 11a & 11b	6	Pol. & Soc. Sci. 17	6
English 1	6	Psychology	6	Modern Language	6
Modern Language	6	Modern Language	6	Elective in Psychology	6
Elective in Science	6	Elective	6	Elective	6

Foreign Commerce

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
History 1 or 6	6	Pol. & Soc. Sci. 2	6	Pol. & Soc. Sci. 7 & 8	6
Pol. & Soc. Sci. 1	6	Pol. & Soc. Sci. 3 & 4	6	Pol. & Soc. Sci. 9 & 10	6
History 13	6	Pol. & Soc. Sci. 5 & 6	6	Pol. & Soc. Sci. 18	3
English 1	6	History 11a & 11b	6	History 3	6
Modern Language	6	Psychology 1 or 2		History 12a & 12b	6
Elective in Science	6	or Elective in Sci.	6	Elective	9
		Modern Language	6		

A quite distinct but attractive field for a professional career of a rather new sort is that offered by various types of Social Service. The humanitarian activities are also tending to become scientific; hap-hazard and chaotic charities and philanthropies are giving way to organization and efficiency, while ignorant brutality in the treatment of the defective and delinquent is being replaced by humane methods based on understanding. The program headed Social Economics lays a basis for the further theoretical and practical training given by schools of civics and philanthropy and schools for social work and research. Such preparation leads to many attractive opportunities in connection with social settlements, organized charity, child welfare, probation and prison reform, housing, social investigation, etc., a large field of expanding activities in this day of social rebuilding.

Social Economics

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Pol. & Soc. Sci. 1	6	Pol. & Soc. Sci. 3 & 4	6	Pol. & Soc. Sci. 11	3
History 1 or 6	6	History 11a & 11b	6	Pol. & Soc. Sci. 16	6
History 13	6	Biology 1 or 11	6	Pol. & Soc. Sci. 17	6
English 1	6	Psychology 1	6	Pol. & Soc. Sci. 18	3
Modern Language	6	Modern Language	6	Psychology 2	6
Elective in Science	6	Elective in English	6	Elective	12

It will be observed that in all these programs the earlier years are closely similar, permitting the student to change his objective within reasonable limits at any time before the middle of his college course.

The courses listed are briefly described on pp. 15-18 of this circular.

Pre-Professional Programs for Diplomacy and the Consular Service

The War has emphasized the importance of adequate preparation for civilian foreign service. Hundreds of American young men who had the proper training have occupied important positions the past year in foreign countries. While many of these posts were of a temporary character, connected with Governmental commissions of one kind and another, yet the increased closeness of intercourse which will exist between this country and other lands, as a result of the war and the inauguration of the League of Nations, will make more openings than ever before for college men who are adequately prepared for them.

For this kind of work it is essential to have a good speaking, as well as good reading, knowledge of various modern languages and a thorough understanding of international relations. This demands more than the content of the orthodox history courses; it involves a general knowledge of the civilization of other lands, the points of view of one people toward another, the history of the controversies which have threatened to create international ill-feeling, and the rules of international law which should govern international disputes of a legal character.

While preparation of this kind for foreign service will be important for many positions abroad, it will be indispensable for the Consular and Diplomatic posts. The following group of courses,

while giving a sufficiently broad Collegiate training, have been arranged with the especial purpose of meeting the requirements of the Government for those taking the Consular and Diplomatic examinations. All of the subjects required by the Government are covered by courses in this group. Although it will be an advantage to take an additional year of graduate study in further and more technical training, this group will give a student a good general preparation for a civilian position in a foreign country.

Consular and Diplomatic Service

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
History 1 or 6	6	Pol. & Soc. Sci. 2	6	Pol. & Soc. Sci. 7 & 8	6
Pol. & Soc. Sci. 1	6	Pol. & Soc. Sci. 3 & 4	6	Pol. & Soc. Sci. 18	6
History 13	6	History 3	6	Pol. & Soc. Sci. 19	6
Modern Language	6	History 7	6	Modern Language	6
English 1	6	History 11a or 12a	3	Elective	12
Elective in Science	6	History 11b or 12b	3		
		Modern Language	6		

The courses listed are briefly described on pp. 15-18 of this circular.

Pre-Professional Programs for Medicine and Sanitation

In recent years the entrance requirements for the best medical schools have become so many and vary so much with the different institutions that the prospective medical student has found difficulty in fulfilling them during his college course. To obviate this difficulty the program outlined below is recommended as meeting the most exacting requirements in Biology, Chemistry, Physics, Mathematics, English Composition and Literature, and Foreign Language that have been set by any medical school. One institution requires, in addition to these subjects, a reading knowledge of simple Latin such as Caesar. The program, however, can be adjusted to meet this requirement also when so desired. It covers fully, of course, the standard requirements of the American Medical Association for entrance to any Class A medical school.

The aim of the program, in addition to meeting the requirements and recommendations of the medical schools, is to give the future physician as broad a training as possible so that he may at least

be introduced into the other fields of knowledge necessary for general culture. With this end in view it is recommended that where extra credits make it possible, electives be taken in the Division of Social Science and Psychology.

Medicine

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Biology 1	6	Biology 3	6	Biology 5	6
Chemistry 1 or 2	12	Chemistry 3	6	Biology 6	6
Mathematics 8	6	Physics 11	6	Chemistry 5	6
English 1	6	English 2	6	Chemistry 10	6
French or German	6	French or German	6	Elect. in Div. B	6
		Elective	6	French, German or Physics	6

The courses listed are briefly described on pp. 15-18 of this circular.

With the concentration of large populations in cities, the establishment of great industrial institutions, food packing houses, milk distributing stations, etc., sanitary problems arise which, more and more, are demanding the services of men skilled in the application of biological laws to community life and social welfare and the enforcement of these laws. The purpose of the program offered in Sanitation is to lay a foundation in the fundamental subjects—Biology, Chemistry, and Physics—so that when a student enters the technical school he may begin at once with the professional phases of sanitary problems and public health administration.

Sanitation

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Biology 1	6	Biology 3	6	Biology 6	6
Chemistry 1 or 2	12	Biology 5	6	Biology 7	3
Mathematics 8	6	Chemistry 3	6	Biology 8	6
English 1	6	Chemistry 4	6	Chemistry 5	6
French or German	6	French or German	6	Chemistry 10	6
		Elective in English	6	Physics 11	6
				Elective	3

The courses listed are briefly described on pp. 15-18 of this circular.

Pre-Professional Programs for High School Teachers

The following programs, typical of many which may be arranged to meet the needs of those who plan to enter high school teaching as a profession, offer combinations frequently desired. In all the

aim has been to provide on the one hand a thorough grounding in at least two related topics of the high school curriculum and on the other to make sure that the student knows something of the fundamental sciences upon which his profession rests. The general topics change from program to program, but Biology, Psychology, Sociology, and Pedagogy have a place in all.* In addition to these, all valuable themselves as purely cultural subjects, a minimum of time has been found also for such general topics as English, History, and Foreign Languages.

Teachers of Science are in especial demand for high school work at the present time. The following program gives a combination of Mathematics and Physics; a similar combination of Physics and Chemistry could easily be arranged.

Mathematics and Physics

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Math. 1 or Math. 8 & Physics 11	12	Mathematics 2	6	Mathematics 3	6
Chemistry 1 or 2	6	Physics 1	6	Physics 3 or 7	6
Biology 2	6	Psychology	6	Pedagogy	6
English 1	6	History	6	Sociology	6
Foreign Language	6	Foreign Language	6	Foreign Language	6
		English	6	Elective	6

The modern teacher of Science, in the better high schools, is expected to be something of a specialist in one or two subjects. A combination, which he frequently is asked to handle, is that of Biology and Chemistry. The following course is so designed as to permit specialization in these branches and at the same time give a broad general training in other subjects essential to the preparation and equipment of such a teacher.

Biology and Chemistry

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
Biology 1	6	Biology 1b or 7	3	Biology 5	6
Chemistry 1 or 2	12	Biology 2 or 11	3	Biology 6	6
Mathematics 1 or 8	6	Biology 3	6	Chemistry 5	6
English 1	6	Chemistry 3	6	Sociology	6
French or German	6	Physics 11	6	Pedagogy	6
		Psychology	6	Elective	6
		French or German	6		

* All the programs carry a free elective in the senior year which can, with propriety, be given to a second course in Pedagogy or Psychology.

Combinations of History with Political and Social Science or with English are often desired. The following programs are arranged to meet these needs.

History and Political Science

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
History 1	6	History 3	6	History 4	6
History 9	6	History 6	6	History 5	6
Pol. & Soc. Sci. 1	6	Psychology	6	History 7	6
English 1	6	Foreign Language	6	Pol. & Soc. Sci. 16	6
Biology	6	Elect. in Pol. &		Pedagogy	6
Foreign Language	6	Soc. Sci.	6	Elective	6
		Elect. in English	6		

English and History

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
English 1	6	English 6	6	Sociology	6
English 2	6	Psychology	6	Pedagogy	6
English 7 or 11	6	Foreign Language	6	For. Lang. or Sci.	6
History 1	6	Elective in Eng.	12	Elective in Eng.	6
Biology	6	Elect. in History	6	Elect. in History	6
Foreign Language	6			Elective	6

The program outlined below is typical of the work that may be done in the way of intensive preparation for a career as teacher of the Romance languages; it is subject to modification in detail, and German may be substituted for Spanish or Italian.*

French and Spanish or Italian

<i>Freshman Year</i>	<i>Hours</i>	<i>Junior Year</i>	<i>Hours</i>	<i>Senior Year</i>	<i>Hours</i>
French 1, 2 or 3	6	French 5 or 6	6	French 6 or 5	6
Span. 1 or 2 or		French 4, if given		French 4, if given	
Italian 1	6	or elective	6	or elective	6
History 1	6	Span. 1 or 2 or		Sociology	6
Biology 2	6	Italian 1	6	Pedagogy	6
English 1	6	Psychology	6	Elect. in English	6
Latin or Greek		Elective in Sci.	6	Elective	6
(Unless previously		Elective in Eng.	6		
studied)	6				

The courses listed are briefly described on pp.15-18 of this circular.

*Except in the case of the man who must get all his training in three years, this department does not look with favor upon intensive specialization in college, preferring to encourage first a broad liberal culture and then an extra year or two of professional study.

List of Courses

The following courses are typical of those offered at Clark College and all have been given within the last two or three years. The more fundamental and elementary courses are repeated each year; some of the more advanced courses are given in alternate years only. A very few are given only when competent instructors are at hand and are, therefore, subject to irregular change without notice.

Division A Science

Mathematics

- 1 Elementary College Mathematics (six hour course)
- 2 Calculus and Solid Analytic Geometry
- 3 Differential and Integral Calculus and Differential Equations
- 6 Surveying and Astronomy
- 8 Elementary College Mathematics (Three hour course)
- 9 Advanced Algebra and Theory of Probability
- 10 Elementary College Mathematics—Continuation of Course No. 8.

Physics

- 1 General Physics (Six hour course)
- 2 Elementary Theoretical Mechanics
- 3 Elementary Theory of Electricity and Magnetism
- 4 Mechanical and Electrical Measurements
- 5 Thermodynamics and Optics
- 6 Advanced Physical Measurements
- 7 Advanced General Physics
- 11 Introductory Mechanics
- 12 General Physics (Three hour course)

Chemistry

- 1 General Descriptive Chemistry
- 2 General Descriptive Chemistry (For students desiring a single course in chemistry)
- 3 Qualitative Analysis
- 4 Quantitative Analysis
- 5 Organic Chemistry
- 6 Advanced Quantitative Analysis including Gas Analysis
- 7 History of Chemistry
- 8 Physical Chemistry
- 9 Biological Chemistry
- 10 Organic Synthesis and Analysis
- 11 Industrial Chemistry

Biology

- 1 General Biology
- 2 Elementary Physiology
- 3 Comparative Anatomy of Vertebrates
- 5 Embryology and Histology
- 6 Advanced Physiology
- 7 Hygiene
- 8 Bacteriology
- 11 Genetics
- 12 Bacteriological Seminary

Division B Social Science and Psychology

History

- 1 Medieval History
- 2 United States History, Colonial Period
- 3 International Relations
- 4 United States History, National Period
- 5 English History
- 6 Modern European History
- 7 Elements of International Law
- 9 History of Greece and Rome
- 11a Economic History of Modern Europe
- 11c European Social Politics in the 19th Century
- 12a Nationalism, Militarism, Diplomacy and International Organization in Europe since 1789
- 12b Imperialism and European Expansion since 1870
- 13 American Commercial and Industrial Expansion

Political and Social Science

- 1 Introduction to Social Science
- 2 Comparative Government
- 3 Economics
- 4 Labor Problems
- 5 Business Management
- 6 Accounting
- 7 Taxation and Public Finance
- 8 Foreign Trade
- 9 Corporation Finance
- 10 Money and Banking
- 11 Municipal Government
- 12 Political Issues and Party Machinery in the United States
- 13 Principles of Politics
- 14 Modern Political Theory
- 15 Foundation and Development of the American Constitutional System
- 16 Sociology
- 17 Social Economics and Theories of Social Reform
- 18 Elements of Statistical Methods
- 19 Commercial Law

Psychology

- 1 General Psychology
- 2 Applied Psychology
- 3 Evolution of Mind and Genetic Psychology
- 4 Experimental Psychology
- 5 Advanced Psychology
- 6 Genetic Psychology and Allied Topics

Philosophy

- 1 Introduction to Philosophy
- 2a Introduction to Logic
- 2b Introduction to Ethics
- 3 History of Science

Pedagogy

- 1 Educational Psychology
- 2 Educational Aims and Problems
- 3 Introduction to the Study of Secondary Education
- 4 Secondary Education and Methods of Instruction in High School Subjects

Division C Language and Literature

English

- 1 English Composition
- 2 History of English Literature in Outline
- 3 The Drama
- 4 The Novel
- 5 Anglo-Saxon and Chaucer
- 6 Advanced Composition
- 7 Public Speaking
- 8 Seminary
- 9 English Literature of the 18th Century
- 10 Nineteenth Century Poetry
- 11 American Literature
- 12 Nineteenth Century Prose
- 13 The Romantic Movement in English Literature
- 15 The Bible as Literature

German

- 1 Elementary German
- 2 Second Year German
- 6 Scientific German

Romance Languages

French

- 1 Elementary French
- 2 Reading of Modern French
- 3 Advanced French
- 4a Aims and Methods of Teaching French
- 4b Teachers' Course
- 5 Literature of the 17th Century
- 6 Literature of the 19th Century
- 10 Advanced Composition and Conversation
- 11 Brief Survey of French Literature in English
- 16 Historical Literary Course

Spanish

- 1 Elementary Course
- 2 Advanced Course

Italian

- 1 Elementary Course

Greek

- 1 Plato (*Apology*) and Homer (*Iliad*)
- 3 Greek Drama
- 7 First Year Course in Greek
- 10 Greek Tragedy in English

Latin

- 1 Cicero, Livy, and Horace
- 3 Plautus and Terence
- 7 First Year Course in Latin
- 10 Roman Private Life

Admission

Admission to Clark is based on the preparatory school record of the applicant supplemented whenever possible by a personal interview. It is usually granted without formal examination. Admission is, however, admission merely to a period of trial, and the College especially reserves the right to drop from its roll any student whose current work is unsatisfactory.

Blanks for application and for transcript of the preparatory school record are supplied on application to the Chairman of the Committee on Admission.

The College is always ready to consider applications for admission as regular students from mature and earnest young men whose preparation has for any reason been irregular. Applications for enrollment as special students are not received from applicants under twenty-one years of age.

Expenses

Tuition for the year 1920-21 will be \$100, payable in advance in two equal installments, unless otherwise arranged with the Dean or President. Additional fees covering the cost of materials are required for courses in laboratory subjects.

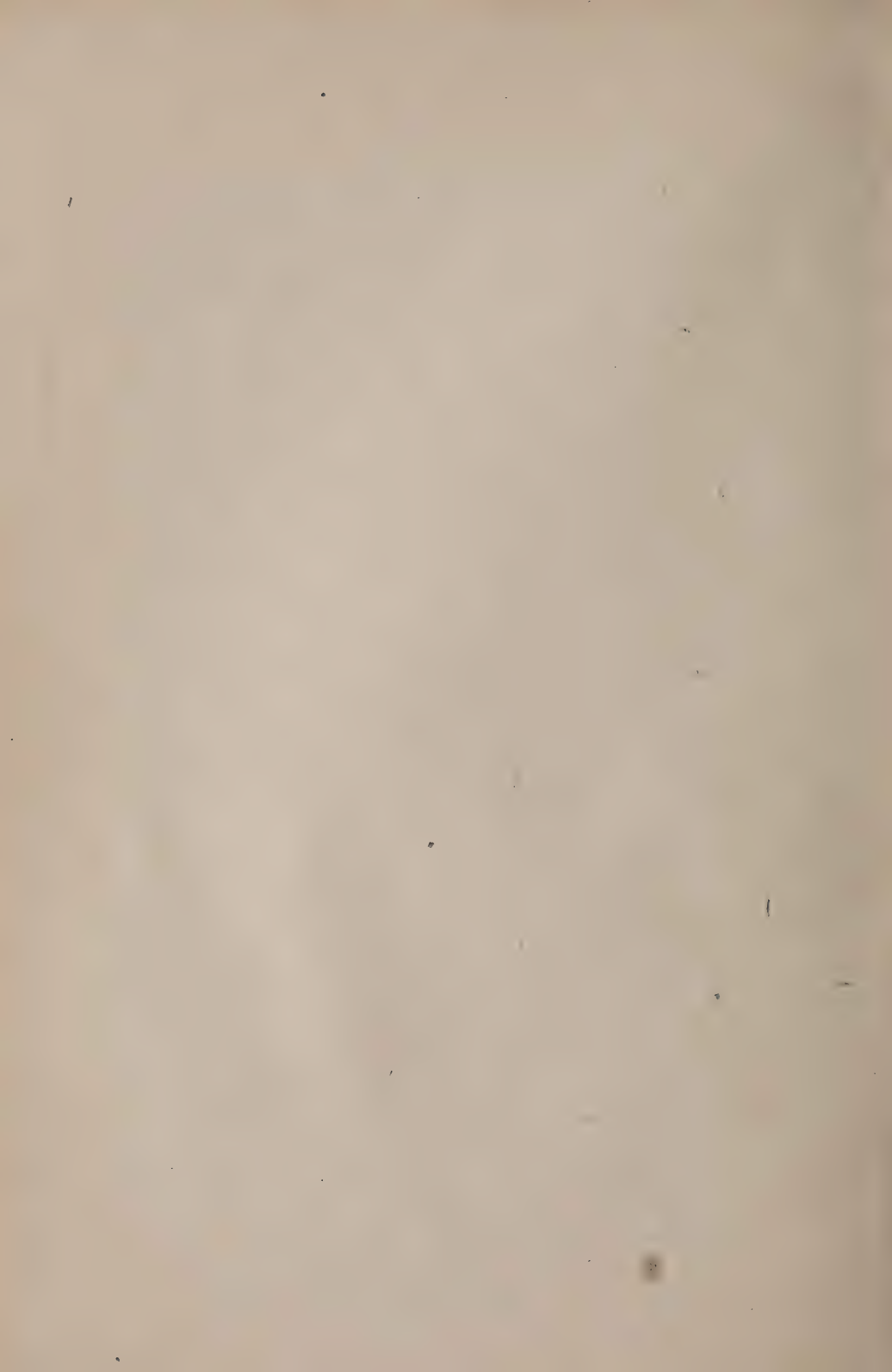
Board at the College Dining Hall is offered at the rate of \$6 per week and students not living in their own homes are required to take their meals there. The College has no dormitories. Furnished rooms in the neighborhood of the College may be had at rates from \$1.50 per week upward. Miscellaneous student expenses, including books and dues to student organizations amount to from \$30 to \$50 per year.

Financial Assistance

Beginning with the fall of 1920 the College will offer five major scholarships paying \$100 each, open to Juniors and Seniors, and twelve minor scholarships paying \$50 each, of which five will be reserved for members of the Freshman class.

The College has also two loan funds from which grants are made to worthy students on notes to be paid at a reasonable time after graduation.

Further particulars on these and other matters are to be found in the annual catalogue of the College, which will be sent upon application.



Personal - please return

Clark University Bulletin

Catalogue Number



Worcester, Massachusetts

May, 1921

Clark University Bulletin

NUMBER 5

MAY, 1921

Catalogue Number

The Catalogue is a record for the current academic year, 1920-21. Such announcements for the year 1921-22 as can be made at the time of publication are included.

The Bulletin is published in October, December, February, and May
and at other times as occasion arises

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HISTORICAL NOTE

Clark University owes its existence to the interest in higher education of Jonas Gilman Clark, who was born at Hubbardston, Worcester County, Massachusetts, February 1, 1815. Successful in commercial life and keenly conscious of the meagerness of his own early educational opportunities, he devoted his later years to the establishment and nurture of the institution which bears his name. In this he was ably assisted by his wife, Susan W. Clark, and by a group of prominent citizens of Worcester. Mr. Clark died at Worcester on May 23, 1900.

The charter of the University was granted by the General Court of Massachusetts in 1887. The Graduate School, with Granville Stanley Hall as president, received its first students in 1889. Special provision was made in Mr. Clark's will for the establishment of a collegiate Undergraduate School with its own president but under the same general control as the Graduate School. Carroll Davidson Wright, then United States Commissioner of Labor, was chosen president of the Undergraduate School and students were first received in October, 1902. After the death of President Wright in 1909, Edmund Clark Sanford, then Professor of Psychology in the Graduate School, was chosen as his successor.

In June 1920, following the resignation of President Hall after thirty-two years of service in the Graduate School and of President Sanford of the College, the Trustees announced the election of Wallace Walter Atwood to the presidency of both the Graduate and the Undergraduate Schools of the University.

During the early part of the academic year 1920-21 the two faculties continued their separate organizations while plans for unification were being worked out. These plans, which will go into effect when approved by the Board of Trustees, provide for the fusion of the two faculties into a single body having immediate supervision over all matters pertaining to the general educational work of the University. All matters pertaining exclusively to the work of the Graduate School will be in charge of a Graduate Board, while a Collegiate Board will exercise a somewhat more limited authority over the activities of the Undergraduate School.

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CALENDAR

1920

SEPT. 15 Wednesday

Nineteenth academic year for the
Undergraduate School began

SEPT. 23 Thursday

Thirty-second academic year for
the Graduate School began

OCT. 12 Tuesday

Columbus Day

NOV. 25 Thursday }

NOV. 27 Saturday }

Thanksgiving Recess

DEC. 24 Friday }

1921

Christmas Recess

JAN. 1 Saturday }

JAN. 31 Monday

Second semester began

FEB. 1 Tuesday

Founder's Day*

FEB. 22 Tuesday

Washington's Birthday

APR. 4 Monday }

APR. 9 Saturday }

Spring Recess

APR. 19 Tuesday

Patriots' Day

MAY 30 Monday

Memorial Day

JUNE 13 Monday

Commencement Day

JULY 5 Tuesday }

AUG. 12 Friday }

Summer School

SEPT. 21 Wednesday

Academic year begins

OCT. 12 Wednesday

Columbus Day

NOV. 24 Thursday }

NOV. 26 Saturday }

Thanksgiving Recess

DEC. 24 Saturday }

DEC. 31 Saturday }

Christmas Recess

1922

FEB. 1 Wednesday

Founder's Day*

FEB. 6 Monday

Second semester begins

FEB. 22 Wednesday

Washington's Birthday

APR. 3 Monday }

APR. 8 Saturday }

Spring Recess

APR. 19 Wednesday

Patriots' Day

MAY 30 Tuesday

Memorial Day

*Not a holiday.

BOARD OF TRUSTEES

A. GEORGE BULLOCK (1901)	Worcester, Mass.
FRANCIS H. DEWEY (1904), Vice-President and Treasurer	
	Worcester, Mass.
HERBERT PARKER (1907)	South Lancaster, Mass.
ARTHUR P. RUGG (1910)	Worcester, Mass.
CHARLES H. THURBER (1913), President	Boston, Mass.
ALFRED AIKEN (1919)	Worcester, Mass.
GEORGE H. MIRICK (1920), Secretary	Worcester, Mass.
STEDMAN BUTTRICK (1920)	Concord, Mass.

FINANCE COMMITTEE

A. GEORGE BULLOCK
FRANCIS H. DEWEY
CHARLES H. THURBER

Final authority in all matters pertaining to the University is lodged in the Board of Trustees by charter granted by the General Court of the Commonwealth of Massachusetts.

UNIVERSITY STAFF

WALLACE WALTER ATWOOD, PH.D. 160 Woodland St.
 President, and Professor of Physical and Regional
 Geography, 1920-.

B.S., University of Chicago, 1897; Ph.D., 1903; Fellow, assistant, and
 associate, 1899-1903; Instructor and Assistant Professor of Physiography
 and General Geology, 1903-10; Associate Professor, 1910-13. Instructor
 at Lewis Institute, Chicago, 1897-99. Instructor at Chicago Institute,
 1900-01. Professor of Physiography, Harvard University, 1913-20. Geolo-
 gist, U. S. Geological Survey; Fellow, American Academy of Arts and
 Sciences; Member of the Geological Society of America and the Association
 of American Geographers; President of the National Council of Geography
 Teachers.

WILLIAM EDWARD STORY, PH.D. 17 Hammond St.
 Professor of Mathematics, 1889-1921. Secretary of the
 Faculty. Professor Emeritus, 1921-.

Professor of Mathematics, Clark College, 1902-07.

A.B., Harvard University, 1871; Parker Fellow, 1874-75; Tutor of
 Mathematics, 1875-76. Ph.D., University of Leipzig, 1875. Associate,
 Assistant Professor, and Associate Professor of Mathematics, Johns Hopkins
 University, 1876-89. Member of the National Academy of Sciences;
 Member of the London Mathematical Society; Resident Fellow of the
 American Academy of Arts and Sciences.

LOUIS N. WILSON, LITT.D. 11 Shirley St.
 Librarian, 1889-. Custodian of the Art Collection.

Litt.D., Tufts College, 1905.

*EDMUND CLARK SANFORD, PH.D., SC.D., LL.D.
 Professor of Psychology and Education.

Instructor in Psychology, 1889-92; Assistant Professor, 1892-1900;
 Professor of Experimental and Comparative Psychology, 1900-09; Lec-
 turer on College Administration, 1909-20; Professor of Psychology and
 * > Education, 1920-.

Professor of Psychology, Clark College, 1903-07; President, 1909-20.
 A.B., University of California, 1883; LL.D., 1912. Fellow in Psychology,
 Johns Hopkins University, 1887; Ph.D., 1888; Instructor in Psychology,
 1888; Fellow by Courtesy, 1920-21; Sc.D., Hobart College, 1909.

ARTHUR GORDON WEBSTER, PH.D., SC.D., LL.D. 85 William St.
 Professor of Physics. Director of Physical Laboratories.

Docent in Physics, 1890-92; Assistant Professor, 1892-1900; Professor,
 1900-.

Professor of Physics, Clark College, 1902-07.

*Absent on leave, 1920-21.

X & resident of Clark College, 1909-20.

A.B., Harvard University, 1885; Instructor in Mathematics, 1885-86; Parker Fellow, 1886-89. Student, Universities of Berlin, Paris, Stockholm, 1886-90; Ph.D., University of Berlin, 1890. Sc.D., Tufts College, 1905. LL.D., Hobart College, 1908. Member of the National Academy of Sciences; Resident Fellow of the American Academy of Arts and Sciences; Member of the American Philosophical Society; Fellow of the American Institute of Electrical Engineers; Fellow of the Institute of Radio Engineers; Member of the American Society of Mechanical Engineers; Member of the Naval Consulting Board of the United States; Honorary Member of the Royal Institution of Great Britain.

HENRY TABER, PH.D.

2 Pleasant Pl.

Professor of Mathematics, 1903-21. Professor Emeritus, 1921-.

Docent in Mathematics, 1889-92; Assistant Professor, 1892-1903.

Ph.B., Yale University, 1882. Ph.D., Johns Hopkins University, 1888; Assistant in Mathematics, 1888-89. Member of the London Mathematical Society; Resident Fellow of the American Academy of Arts and Sciences.

WILLIAM HENRY BURNHAM, PH.D.

767 Main St.

Professor of Education and School Hygiene.

Docent in Pedagogy, 1890-92; Instructor, 1892-1900; Assistant Professor, 1900-06; Professor, 1906-.

A.B., Harvard University, 1882. Instructor in Wittenberg College, 1882-83. Instructor, State Normal School, Potsdam, N. Y., 1883-85. Fellow, Johns Hopkins University, 1885-86; Ph.D., 1888; Instructor in Psychology, 1888-89.

BENJAMIN SHORES MERIGOLD, PH.D.

940 Main St.

Professor of Chemistry.

Instructor in Chemistry, 1905-12, 1916-20; Professor, 1920-.

Assistant Professor of Chemistry, Clark College, 1903-08; Professor, 1908-20.

A.B., Harvard University, 1896; A.M., 1897; Ph.D., 1901; Assistant in Chemistry, 1896-1900. Instructor in Chemistry, Worcester Polytechnic Institute, 1900-03.

FRANK BLAIR WILLIAMS, PH.D.

2 Isabella St.

Professor of Mathematics.

Scholar in Mathematics, 1897-98; Fellow, 1898-1900; Ph.D., 1900; Instructor in Mathematics, 1910-20; Professor, 1920-.

Assistant Professor of Mathematics, Clark College, 1907-08; Professor, 1908-20.

C.E., University of Missouri, 1890; M.S., 1893; Teaching Fellow in Mathematics, 1892-93. Engineering Work with the Mississippi River Commission, 1890-92; Survey Work, 1894. United States Assistant Engineer in Tennessee River Improvement, 1895-97. Assistant Professor of Engineering, Union College, 1900-04; Professor of Engineering Mathematics, 1904-07.

GEORGE HUBBARD BLAKESLEE, PH.D. 21 Downing St.
Professor of History and International Relations.

Instructor in History, 1905-11; Professor, 1911-14; Professor of History and International Relations, 1914-.

Instructor in History, Clark College, 1903-04; Assistant Professor, 1904-09; Professor, 1909-14; Professor of History and International Relations, 1914-20.

A.B., Wesleyan University, 1893. Graduate Student, Harvard University, 1898-1901; Parker Fellow, 1901-02; A.M., 1900; Ph.D., 1903. Student, Johns Hopkins University, 1893-94. Student, Universities of Berlin, Leipzig, and Oxford, 1901-03. Member of the Commission of Inquiry to prepare data for the United States Delegation to the Peace Conference, 1918-19. Member of the Council of the American Antiquarian Society; Resident Member of the Massachusetts Historical Society.

CHARLES BREWSTER RANDOLPH, PH.D. 10 Otsego Rd.
Professor of German, 1920-. Secretary of the Summer School.

Instructor in Greek, Clark College, 1903-04; Instructor in Greek and Latin, 1904-05; Assistant Professor, 1905-10; Professor of Latin, 1910-18; Professor of Latin and German, 1918-20.

A.B., Wabash College, 1896; Tutor in Classics, 1896-97. Graduate Student, Harvard University, 1901-03; A.M., 1902; Ph.D., 1905. Instructor in Greek and Latin, University of Illinois Preparatory School, 1897-1900. Student, University of Halle, 1900-01.

PHILIP HUDSON CHURCHMAN, PH.D. 20 Institute Rd.
Professor of Romance Languages, 1920-.

Assistant Professor of Romance Languages, Clark College, 1908-11; Professor, 1911-.

A.B., Princeton University, 1896; A.M., 1903; Instructor in French, 1900-04. Master, Chestnut Hill Academy, Philadelphia, 1897-99. Student, Universities of Paris and Grenoble, 1899-1900. Student, University of Paris, 1903-04. Instructor in French and Spanish, United States Naval Academy, 1904-05. Graduate Student, Harvard University, 1905-08; Instructor in Romance Languages, 1906-08; Ph.D., 1908. Visiting Lecturer in the University of Chicago, Summer Quarter, 1912.

HAVEN DARLING BRACKETT, PH.D. 114 Woodland St.
Professor of the Greek and Latin Languages and Literatures, 1920-.

Instructor in Greek and Latin, Clark College, 1904-06; Assistant Professor, 1906-10; Assistant Professor of Greek, 1910-12; Professor of Greek, 1912-15; Professor of the Greek Language and Literature, 1915-20.

A.B., Amherst College, 1898. Master in Greek, Mercersburg Academy (Pennsylvania), 1898-99. Master in Greek, Lake Forest Academy (Illinois), 1899-1900. Sub-master, Boston Latin School, 1900-01. Graduate Student,

Harvard University, 1901-04; Ph.D., 1904; Assistant in Ancient History, Harvard University, and Lecturer in Greek History, Radcliffe College, 1903-04.

JAMES PERTICE PORTER, Ph.D., Sc.D. 209 Lovell St.
Professor of Psychology. Collegiate Dean.

Ph.D., 1906; Instructor in Psychology, 1910-12; Lecturer in Comparative Psychology, 1915-20; Professor of Psychology, 1920-.

Instructor in Psychology, Clark College, 1903-07; Assistant Professor, 1907-12; Professor, 1912-20; Collegiate Dean, 1909-.

A.B., Indiana University, 1898; A.M., 1901; Instructor in Psychology, 1900-03. In charge of work in Neurology, Indiana University Biological Station, 1901 and 1903. Sc.D., Waynesburg College, 1917. Teacher, Veedersburg (Ind.) High School, 1893-94. Principal, Kentland (Ind.) High School, 1895-97. Teacher of Science, Streator (Ill.) High School, 1898-1900. Captain, Sanitary Corps, U. S. A., on duty with Air Service Division at various aviation fields, July 1918-March 1919.

***FRANK HAMILTON HANKINS, Ph.D.** 4 Cabot St.
Professor of Sociology.

Instructor in Economics and Sociology, 1906-07, 1908-15; Assistant Professor of Sociology, 1915-17; Professor, 1917-.

Instructor in Political and Social Science, Clark College, 1906-07; Assistant Professor, 1908-13; Professor, 1913-20.

A.B., Baker University, 1901. Superintendent of Schools, Waverly, Kan., 1901-03. Graduate Student, Columbia University, 1903-04; Scholar in Sociology, 1904-05; Fellow in Statistics, 1905-06; Graduate Student, 1907-08; Ph.D., 1908.

†RALPH STAYNER LILLIE, Ph.D.
Professor of Biology, 1913-20.

CHARLES A. KRAUS, Ph.D. 11 Downing St.
Professor of Chemistry and Director of the Chemical Research Laboratories, 1914-.

B.S., University of Kansas, 1898. Fellow in Physics, Johns Hopkins University, 1899-1900. Instructor in Physics, University of California, 1901-04. Research Assistant, Massachusetts Institute of Technology, 1904-08; Ph.D., 1908; Research Associate, 1908-12; Assistant Professor of Physical Chemical Research, 1912-14.

LEROY ALLSTON AMES, A.M. 940 Main St.
Professor of English Literature, 1920-.

Instructor in English Literature, Clark College, 1908-10; Assistant Professor, 1910-15; Professor, 1915-20.

*Absent on leave, 1920-21.

†Resigned Oct. 31, 1920.

A.B., Harvard University, 1896; Assistant in English, 1899-1900; Graduate Student, 1899-1901; A.M., 1901. Teacher of English, Browne and Nichols School, Cambridge, Mass., 1896-99. Teacher of English, Worcester English High School, 1901-06; Noble and Greenough School, Boston, Mass., 1906-07.

***IRVING ANGELL FIELD, Ph.D.**

Professor of Biology, 1920-21.

Honorary Fellow in Biology, 1911-17; Ph.D., 1913.

Instructor in Biology, Clark College, 1911-13; Assistant Professor, 1913-16; Associate Professor, 1916-18; Professor, 1918-20.

EDWIN GARRIGUES BORING, Ph.D.

11 Oberlin St.

Professor of Experimental Psychology, 1919-. Director

of the Laboratories of Experimental Psychology, 1921-.

Secretary of the Graduate Board.

M.E., Cornell University, 1908; A.M., 1912; Ph.D., 1914; Assistant in Psychology, 1911-13; Instructor, 1913-18. Research Assistant, Government Hospital for the Insane, 1912. Psychological Service, U. S. Army, 1918-19. Secretary of the American Psychological Association.

HARRY ELMER BARNES, Ph.D.

114 Woodland St.

Professor of History.

Assistant Professor of History, 1918-19; Professor, 1920-.

Associate Professor of History, Clark College, 1918-19.

A.B., Syracuse University, 1913; A.M., 1914; Instructor in Historical Sociology, 1913-15. University Fellow in Historical Sociology, Columbia University, 1915-16; William Bayard Cutting Traveling Fellow in the History of Thought and Culture, 1916-17; Lecturer in Modern European History, 1917-18; Ph.D., 1918. Research work at Harvard University, 1916-17. Historian to the New Jersey Prison Inquiry Commission, 1917, and to the Pennsylvania Penal Commission, 1918. Professor of History, New School for Social Research, 1919-20. Professor of History, summer session, University of Montana, 1919. Professor of History and Assembly Lecturer, summer session, University of Oregon, 1920.

LORING HOLMES DODD, Ph.D.

20 Sagamore Rd.

Professor of Rhetoric, 1920-.

Instructor in English, Clark College, 1910-13; Assistant Professor, 1913-16; Associate Professor, 1916-20.

A.B., Dartmouth College, 1900. A.M., Columbia University, 1901. Ph.D., Yale University, 1907. Instructor, Choate School, Wallingford, Conn., 1901-02. Instructor in English, St. Paul's School, Garden City, N. Y., 1907-10.

*Died Feb. 14, 1921.

ROBERT HUTCHINS GODDARD, PH.D. 5 Bishop Av.
Professor of Physics. Associate Director of Physical
Laboratories.

Student in Physics, 1908-09; Fellow, 1909-11; A.M., 1910; Ph.D., 1911;
Honorary Fellow, 1911-12, 1914-15, 1919-20; Instructor in Physics, 1916-18;
Professor and Associate Director of Physical Laboratories, 1920-.

Instructor in Physics, Clark College, 1914-15; Assistant Professor,
1915-19; Associate Professor, 1919-20.

B.S., Worcester Polytechnic Institute, 1908; Instructor in Physics,
1908-09. Research Instructor in Physics, Princeton University, 1912-13.
Director of Research under U. S. Signal Corps, Worcester Polytechnic
Institute and Mt. Wilson Observatory, 1918.

CAREY EYSTER MELVILLE, A. B. 16 Isabella St.
Associate Professor of Mathematics. Collegiate Regis-
trar.

Honorary Fellow in Mathematics, 1906-15; Associate Professor, 1920-.

Assistant in Mathematics, Clark College, 1906-09; Instructor, 1909-10;
Instructor in Mathematics and Physics, 1910-11; Assistant Professor,
1911-14; Assistant Professor of Mathematics, 1914-18; Associate Professor,
1918-20; Registrar, 1914-.

A.B., Northwestern University, 1901. Instructor in Mathematics,
Academy of Northwestern University, 1901-02. Graduate Student, Johns
Hopkins University, 1902-03. Instructor in Mathematics, Case School of
Applied Science, 1903-06.

GEORGE FREDERIC WHITE, PH.D. 38 Somerset St.
Professor of Organic Chemistry.

Docent in Biological Chemistry, 1913-15; Instructor, 1915-20; Associate
Professor of Organic Chemistry, 1920-21; Professor, 1921-.

Instructor in Organic Chemistry, Clark College, 1912-13; Assistant
Professor, 1913-18; Associate Professor, 1918-20.

S.B., Massachusetts Institute of Technology, 1906; Assistant in Analyti-
cal and Organic Chemistry, 1906-08. Fellow, Johns Hopkins University,
1909-10; Ph.D., 1910. Associate Professor of Chemistry, Richmond Col-
lege, 1910-12.

*SAMUEL WEILLER FERNBERGER, PH.D.

Assistant Professor of Experimental Psychology.

Instructor in Experimental Psychology, 1912-15; Assistant Professor,
1915-21.

JOHN SHAW FRENCH, PH.D. 973 Main St.
Assistant Professor of Mathematics. Executive Secre-
tary.

Scholar in Mathematics, 1895-96; Fellow, 1896-98; Ph.D., 1898; Hono-
rary Fellow, 1918-19; Assistant Professor and Executive Secretary, 1920-.

*Resigned Jan. 1, 1921.

Assistant Professor of Mathematics and Executive Secretary, Clark College, 1918-20.

A.B., Bowdoin College, 1895. Professor of Mathematics, Jacob Tome Institute, 1898-1908; Head Hall Master, 1902-08; Acting Director, 1901. Principal, Morris Heights School, Providence, R. I., 1908-18.

JAMES METIVIER, A. B. 80 Florence St.
Assistant Professor of French, 1920-.

Assistant Professor of French, Clark College, January, 1919-20.

A.B., Harvard University, 1877; Instructor in French, 1879-81. Teacher of French, Concord High School, 1878-79. Instructor, Noble's School, 1881-83. Instructor in French and German, Browne and Nichols School, 1883-1900. Instructor in French, Stone's School, 1900-02; Huntington School, 1902-17. Y. M. C. A. Work, Camp Gordon, Ga., and Kenilworth Hospital Camp, N. C., 1917-18.

KENNETH STILLMAN RICE, Sc. M. 3 Hawthorne St.
Assistant Professor of Biology.

Honorary Fellow in Biology, 1919-20; Assistant Professor, 1920-.

Assistant Professor of Biology, Clark College, 1919-20.

Ph.B., Brown University, 1913; Sc.M., 1915; Graduate Student in Physiology, 1915-17. Scientific Assistant in U. S. Bureau of Fisheries Laboratory, Woods Hole, Mass., Summers of 1915 and 1916. Instructor in Physiology, Medical School of the University of Georgia, 1917-18. Instructor in Biology, Tufts Pre-medical School, 1918-19.

HERMANN HILMER, Ph.D. 5 King St.
Assistant Professor of Economics, 1920-.

A.B., University of Michigan, 1904. A.M., Columbia University, 1905. Assistant in German, University of Wisconsin, 1905-06. Student, University of Leipzig, 1906-07. Instructor in German, Leland Stanford, Jr., University, 1907-12; Ph.D., 1912; Assistant Professor, 1912-16. Student, University of Berlin, 1913-14. Assistant in Economics, Cornell University, 1917-18; Fellow in Economics and Finance, 1918; Instructor in Economics, 1918-20.

CARROLL CORNELIUS PRATT, A.M. 70 Florence St.
Instructor in Experimental Psychology.

A.B., Clark College, 1915; Scholar in Psychology, Clark University, 1915-17; A.M., 1916; Assistant in Experimental Psychology, 1919-20; Instructor, Jan., 1921-.

Student, University of Cambridge, 1919.

ERNEST RAYMOND WHITMAN 1 Webster St.
Director of Physical Education.

JOSEPH DE PEROTT 5 Hawthorn St.
Lecturer in Mathematics.

Docent in Mathematics, 1890-1904; Lecturer, 1904-21.
Student, Universities of Paris and Berlin, 1877-80.

KARL JOHAN KARLSON, PH.D. 56 Fairfax Rd.
Lecturer in Philosophy.

A.B., Clark College, 1909; Scholar in Psychology, Clark University, 1909-10; A.M., 1910; Fellow, 1910-12; Ph.D., 1912; Honorary Fellow in Psychology, 1912-14; Lecturer in Philosophy, 1914-21.

JAMES EDMUND IVES, PH.D.
Research Associate and Lecturer in Physics.

Scholar in Physics, 1897-98; Fellow, 1898-1901; Ph.D., 1901; Honorary Fellow in Physics, 1912-16; Research Associate, 1916-17; Research Associate and Lecturer, 1918-.

Instructor in Physics, Drexel Institute, 1893-97. Student in Physics, Cavendish Laboratory, Cambridge, England, 1896. Instructor in Physics, University of Cincinnati, 1901-03; Assistant Professor, 1905-10; Associate Professor, 1910-12. Captain, Signal Corps, U. S. A., on duty with the Radio Service of the Intelligence Division of the General Staff, May, 1918-July 1920; Captain, Signal Officers Reserve Corps, U. S. A., 1920-. Fellow, American Academy of Arts and Sciences; American Physical Society; Institute of Radio Engineers.

SAMUEL REED DAMON, A.M.
Lecturer in Bacteriology, Feb.-June 1921.

Ph.B., Brown University, 1916; A.M., 1917; Graduate Student in Bacteriology and Physiology, 1916-17 and 1919-21. Instructor in Biology and Chemistry, East Providence High School, Jan.-June 1920. Assistant Bacteriologist, Rhode Island State Board of Health, Sept. 1920-.

FREDERICK HERBERT BAKER, M.D. (Harvard) 4 Linden St.
Medical Director.

J. EDWARD BOUVIER 22 Lenox St.
Musical Director.

FLORENCE CHANDLER 938 Main St.
Bursar.

- WILLIAM JOHN BARR, A.B., Assistant in History.
KENNETH CLARK BLANCHARD, Assistant in Biology.
CONRAL CLEO CALLIS, A.M., Assistant in Chemistry.
JOSEPH CHILK, A.B., Assistant in History.
ALBERT FARNSWORTH, PH.B., Assistant in History.
HAROLD WILLIAM HEISER, B.S., Assistant in Chemistry.
WILLIAM JOHN HIGGINSON, Assistant in Political and Social Science.
FRANKLIN EDGAR HUBBARD, Assistant in Physics.
HERMAN FLETCHER KURTZ, A.M., Assistant in Chemistry.
CLINTON S. LEONARD, B.H., Assistant in Physical Education.
MAX MEENES, Assistant in Psychology.
ARISTOTLE D. MICHAL, A.B., Assistant in Physics.
VALMORE ALEXIS PELLETIER, Assistant in Biology.
SAMUEL ERNEST POND, A.M., Assistant in Biology.
CARROLL CORNELIUS PRATT, A.M., Assistant in Experimental
Psychology, first semester.
ALLEN BYRON STOWE, B.S., Assistant in Chemistry.
MILES ALBERT TINKER, Assistant in Psychology.
JOHN HENRY WUORINEN, Assistant in Political and Social Science.
MATSUSABURO YOKOYAMA, A.M., Assistant in Experimental
Psychology, second semester.

The University

General Information

LOCATION

Clark University is located in Worcester, Massachusetts, an industrial and educational center with a population of nearly two hundred thousand. It is distant about forty miles from Boston and from Providence, and about two hundred miles from New York City.

Situated at the eastern border of the central Massachusetts upland at an altitude of nearly six hundred feet above sea level, excessive humidity is seldom experienced and the climate is bracing.

GROUNDS AND BUILDINGS

The University Campus is a tract of about eight acres bounded by Main, Woodland, Maywood, and Downing Streets, about a mile and a quarter from the City Hall. Here the principal buildings are located. Besides this tract, the institution owns the athletic grounds between Maywood and Beaver Streets, the land at the corner of Woodland and Charlotte Streets where the Dining Hall is located, and the Hadwen Arboretum, the bequest of Mr. O. B. Hadwen, a tract of about twenty acres situated on Lovell and May Streets.

The Main Building, completed in 1889, is a four story granite and brick building, 204 feet by 114 feet, of fire resisting construction, containing about ninety rooms. A gymnasium, 96 feet by 64 feet, with adjacent locker rooms and shower baths, is located on the ground floor. On the floor above are an assembly room seating about four hundred persons, administrative offices, study rooms, and class-rooms. The upper floors are used for class-rooms, laboratories, and private offices. An additional story over the central portion of the building is occupied by the Educational Museum.

The Science Building, completed in 1889, is constructed of brick with brick partitions throughout. It has the form of a letter L with each wing about 135 feet in length. The wing

adjacent to Woodland Street, containing about twenty-eight rooms on three floors, is occupied by the Department of Chemistry. The other wing, containing about twenty-two rooms on four floors, is occupied by the Department of Physics.

The Library Building, completed in 1903, is architecturally the most noteworthy of the University buildings. The design is a modern adaptation of the Gothic style. The exterior is of brick on a granite foundation. The interior is finished throughout in oak. The original building, facing Main Street and extending back along Downing Street, is 78 feet by 168 feet and three stories in height. It contains the Librarian's office, reading rooms, stack rooms, and the Art Gallery.

The New Wing of the Library, completed in 1910, is 56 feet wide and extends along Main Street for 111 feet. It is connected by corridors to the original building, which it matches in design. It contains, on the first floor, the undergraduate reading room, on the two upper floors, the office of the President of the University, other private offices, and the library and lecture rooms of the Graduate School of Geography.

The Dining Hall, at the corner of Maywood and Charlotte Streets, was completed in 1908. It is about 43 feet wide by 123 feet long, one story high, with a basement mostly above ground, and is built of brick. The equipment is modern in every respect, and ample for the accommodation of about two hundred regular boarders.

The University also owns the residences on Maywood Street occupied by President Atwood and by Ex-president Hall, and several other dwellings, including two at the Hadwen Arboretum.

The Main Building, the Science Building, and the Library are heated from a central heating plant, located in the Main Building.

ORGANIZATION

The University includes:

The Undergraduate School (popularly known as Clark College), offering a general collegiate course leading to the A.B. degree.

The Graduate School, offering advanced instruction leading to the A.M. and Ph.D. degrees.

The Graduate School of Geography, offering special training leading to the higher degrees in Geography and related subjects.

The Summer School, offering both undergraduate and graduate instruction.

The Library, with its separate endowment, offering unusual opportunities for study and research.

The courses of study offered are distributed among thirteen departments:

1. Ancient Languages and Literatures
2. Biology
3. Chemistry
4. Education and School Hygiene
5. English Language and Literature
6. Geography
7. German Language and Literature
8. History and International Relations
9. Mathematics
10. Physics
11. Political and Social Science
12. Psychology
13. Romance Languages and Literatures

Announcements of the different schools and of the different departments will be found, each under its own heading, in the following pages.

Until 1920, the graduate and undergraduate faculties were organized independently, although certain members of the staff served on both. During the academic year 1920-21 the University was reorganized according to the following plan:

THE BOARD OF TRUSTEES is the ultimate authority in all matters pertaining to the University.

THE PRESIDENT is the executive officer of the institution.

THE FACULTY consists of the President, the Librarian, and all members of the staff giving regular courses of instruction. It has immediate supervision over the general educational work of the University and is responsible for the nomination to the Board of Trustees of candidates for baccalaureate degrees and for honorary degrees.

THE SENATE is an advisory body consisting of six members of the Faculty appointed by the President.

THE GRADUATE BOARD consists of the President and representatives of the departments, offering advanced graduate instruction. It has general control of the work of the Graduate School and is

responsible for the nomination to the Board of Trustees of candidates for the degrees of Master of Arts and Doctor of Philosophy.

THE COLLEGIATE BOARD consists of the President, the Collegiate Dean, the Collegiate Registrar, and six other members of the Faculty appointed by the President. It has immediate supervision over the work of the Undergraduate School subject to the direction of the Faculty and recommends to the Faculty candidates for the baccalaureate degrees.

Each DEPARTMENT is organized in a manner agreed upon by the members of the Department with the approval of the President. The Departments are responsible for the instruction offered in their respective fields and may make recommendations to the President in regard to appointments and promotions.

THE ACADEMIC YEAR

The University year begins on a Wednesday in the latter part of September, and Commencement Day is near the middle of June. The first semester ends on the Saturday before the twentieth Monday, and the second semester begins on the twentieth Monday of the academic year. There are three recesses during the college year: Thanksgiving Day and the two days following; eight to ten days including Christmas and New Year's Days; and the week beginning with the first Monday in April. University exercises are suspended also on Columbus Day, Washington's Birthday, Patriots' Day, and Memorial Day, and during some of the morning hours on Founder's Day, in order to permit students to attend the commemoration exercises.

The Summer School begins on the Tuesday following July 4, and continues in session for six weeks.

Students are expected to be present on the first day of each term and to continue in attendance from day to day to the end of the term.

REGISTRATION

Registration of programs of study takes place on the opening day of the academic year, and, when there is any change of program for the second semester, on the first day of the semester.

Registration for the Summer School takes place on the first day of the session.

TUITION AND FEES

The tuition in the Undergraduate and Graduate Schools is \$100 per year, payable in two equal installments. These installments are due at the beginning of each semester. If the tuition is not paid within ten days after it is due the enrollment of the student will lapse. A student whose enrollment has lapsed for non-payment of tuition may be re-enrolled, with permission of the proper administrative officer, on payment of the overdue tuition with an additional fee of \$2.

Tuition in the Summer School is \$20 for a single course, \$30 for two courses, and \$40 for three courses. Tuition may be paid at any time before the opening of the Summer School, and must be paid by noon of the first Saturday of the term.

A matriculation fee of \$5 will be required of all students entering Clark University after January 1, 1922. This is paid but once, and will permit a student to return successive years, or after a period of absence, without any further charge for matriculation. This fee will apply also to students who register for the Summer School after the above date.

Laboratory fees are charged according to the following schedule:

\$2.50 each semester for undergraduate laboratory courses in Biology, Physics, Psychology, and courses 11 and 12 in Chemistry.

\$5 each semester for other undergraduate laboratory courses in Chemistry.

A deposit of \$10 for each course, to cover breakage, is required of students taking undergraduate laboratory work in Chemistry. Any balance remaining at the end of the year will be returned on application; and if the deposit is not sufficient to cover the breakage, any excess will be collected by the Bursar.

Laboratory fees and deposits for breakage are due at the time of registration for the courses.

Diploma fees are charged according to the following schedule:

\$5 for the Bachelor of Arts diploma.

\$10 for the Master of Arts diploma.

\$25 for the Doctor of Philosophy diploma.

These fees are due before the delivery of the diploma.

EXPENSES

Board at the Dining Hall is furnished at cost and the charge has varied from year to year. During the current year the charge has been \$7 per week.

Undergraduates who do not live in their own homes are required to board at the Dining Hall.

The University has no dormitories. Lodging can be secured within convenient distances at a cost for furnished rooms as low as \$3 per week.

The cost of books varies greatly with the programs of study and no definite estimate of this item of expense can be given. The University maintains a book store which is operated without profit in order to reduce the cost of text-books and supplies.

FELLOWSHIPS, SCHOLARSHIPS, AND STUDENT AID

UNIVERSITY FELLOWSHIPS for graduate students are provided annually from the income of the George F. Hoar Fund of one hundred thousand dollars, the gift of Andrew Carnegie. A senior Fellow may receive two hundred dollars, a junior Fellow, one hundred dollars, with remission of tuition in each case. The number of Fellowships of each class and their distribution among the departments of instruction vary from year to year.

THE AMERICAN ANTIQUARIAN SOCIETY FELLOWSHIP in American History, having a value of four hundred dollars in addition to the remission of tuition, has been established by members of the American Antiquarian Society. This Fellowship will be awarded to a student whose *major* is in American History.

No application blanks are provided. An applicant should address the President of the University, stating fully his previous course of study. He should also submit testimonials or diplomas, especially such as indicate a decided fitness for advanced study in some particular department. These should be accompanied, if practicable, by specimens of the candidate's work. Applications will be considered in April and in October and should be in the hands of the President on or before the first day of either month. In special cases vacancies may be filled by appointments at any time during the year. The names of unsuccessful candidates will not be made public.

Fellows must reside in Worcester during the entire academic year and devote themselves to study under the direction of their

instructors. It is generally expected that they will undertake some work of research during the year and that they will proceed to the degree of Doctor of Philosophy. They must coöperate in promoting harmony, order, and all the aims of the University, and must not teach elsewhere. Fellowships are annual appointments and may be renewed from year to year.

Being intended primarily as honors, Fellowships are awarded without reference to pecuniary needs. Those Fellows able and desiring to do so may relinquish the emolument and retain the title.

UNIVERSITY GRADUATE SCHOLARSHIPS, yielding tuition, are awarded to students of ability at the discretion of the President of the University, following recommendations by the Departments.

UNDERGRADUATE SCHOLARSHIPS are awarded to undergraduates primarily upon the basis of pecuniary need, with due regard to character and ability. Fifteen of these Scholarships are available at present.

Five Major Scholarships, yielding tuition for one year, and five Minor Scholarships, yielding tuition for one semester, are awarded at the beginning of the academic year to students in regular standing who have completed at least one third of the work required for the Bachelor's degree. The remaining five Minor Scholarships will be open at the beginning of the second semester to members of the freshman class in regular standing.

THE LIVERMORE AND AMBULANCE SCHOLARSHIP was endowed by citizens of Worcester in honor of Charles Randall Livermore, Clark College, '17, the first Clark man to fall in battle, and of his companions in the Clark Unit of Ambulance Drivers. A scholarship of fifty dollars or more is offered from the income of the fund, to be awarded on the basis of academic success, character, and usefulness to the College. The scholarship is open to students in regular standing in any class of the College who are residents of Worcester County, but preference will be given, other things being equal, to members of the Clark Unit still studying as undergraduates.

Applications for undergraduate scholarships should be filed with the Collegiate Registrar not less than ten days before the beginning of the semester. Applicants for Major Scholarships must have attained in their previous work at Clark an average grade entitling them to rank in the highest third of their respective

classes, and applicants for Minor Scholarships must have attained a rank above the middle of the class. Awards are made by the Executive Committee* of the collegiate faculty.

The College expressly reserves the right to award less than the full number of scholarships of either sort in any year if less than the full number of worthy candidates apply or if for any other reason it may seem advisable to do so.

A CITIZEN'S FUND has been established by a citizen of Worcester in the sum of five thousand dollars, the income of which is to be used for the aid of "some one or more worthy native born citizens of the City of Worcester who may desire to avail themselves of the advantages of the institution." The benefits of this fund are available to graduate students only.

THE JOHN WHITE FIELD FUND, the income of which is "to provide for the minor needs of a Scholar or Fellow," has been established by Mrs. Eliza W. Field. The fund amounts to five hundred dollars.

The following regulations apply to the award of the income of the Field Fund:

1. Regard is had to the intellectual ability of the candidate as well as to need of pecuniary assistance.

2. Only candidates who have spent three months in graduate work at the University are considered.

3. The head of each department will consider and report to the Faculty desirable cases in his department.

4. Applications are received not later than December 15, and the awards made as soon as possible after the Christmas recess.

THE ELIZA D. DODGE FUND is a sum of one thousand dollars the income only of which is to be expended to aid graduate students of limited means engaged in research work.

Aid which is given in the form of scholarships and from the various Funds of the college is not regarded as a loan. If, however, those who avail themselves of such aid are able to return the amounts in later years, credit will be given on the books of the University Treasurer, and the sums, whatever they may be, will be put into the Funds of the University for the use of other students in like circumstances.

*The Collegiate Board, after 1920-21.

THE CLARK COLLEGE LOAN FUND. Grants from this Fund are made on recommendation of the President or Collegiate Dean in amounts determined by the need of the applicant but seldom in excess of one hundred dollars per year to any single applicant. The loans are covered by notes payable at a fixed date after graduation and bear interest after maturity at the rate of six per cent per annum. In order to be eligible for a grant from this Fund the student's academic record must give him rank above the lowest third of his class. Applications may be made at any time.

THE ESTABROOK LOAN FUND. This is a revolving Fund created by the generosity of the late Arthur F. Estabrook of the Board of Trustees and now amounting to a total of about four thousand two hundred and fifty dollars, most of the amount being at present in the hands of earlier borrowers. The Fund is administered by the Collegiate Dean, and grants from the money available are made at any time without the requirement of the standing in scholarship applying to the College Loan Fund. The notes given to cover the grants are payable after graduation and without interest, but it is expected that loans from this Fund will be repaid as promptly as possible.

HEALTH AND PHYSICAL TRAINING

The Medical Director, Doctor Frederick H. Baker, exercises general supervision over matters of health and hygiene in the University. For undergraduates a thorough medical examination is required at the beginning and end of each year. Three hours per week of Physical Training are required of all who are not excused for adequate reasons. Medical examinations and Physical Training are optional with graduate students.

The Medical Director is available during the academic year for conferences and medical advice. It is intended that his services shall be primarily of a preventive nature. The University does not conduct an infirmary and does not undertake to care for cases of illness requiring medical attention or hospital accommodations, although it will coöperate in every possible way in meeting such emergencies.

The Director of Physical Education has supervision over all required Physical Training and other athletic activities. In the

matter of intercollegiate contests he is assisted by the Committee on Athletics of the Faculty.

The University athletic grounds lie on the opposite side of Maywood Street from the campus. The tennis courts here are among the best in the city; there is a fine cinder running track about an eighth of a mile in length, and ample provision has been made for the practice of all sorts of track athletics.

The gymnasium is located on the ground floor of the Main Building. Individual steel lockers and an ample number of shower baths are provided.

PUBLIC LECTURES

A series of public lectures, by competent speakers both from within and without the University, is given in the Assembly Hall during the year. The weekly General Assembly of the students is frequently addressed by invited speakers from outside. In this way members of the University have the opportunity of hearing many men and women of national reputation.

PUBLICATIONS

A REGISTER AND OFFICIAL ANNOUNCEMENT of the graduate school has been issued each year from 1889 to 1920.

A CATALOGUE containing the announcements and record of the undergraduate school has been issued annually since 1902. From 1906 to 1920, this has constituted the January number of the CLARK COLLEGE RECORD, an official bulletin published quarterly.

THE CLARK UNIVERSITY BULLETIN, beginning in December 1920, will replace the two publications named above. In addition to the annual Catalogue of the University there will be issued as numbers of the Bulletin, announcements of the different schools and of separate departments, announcements of special events or undertakings, and general news numbers for the purpose of keeping the alumni and other friends in touch with the University and with each other.

The Bulletin will be published in October, December, February, and May, and at other times as occasion arises.

Other publications of the University include:

THE ANNUAL REPORT OF THE PRESIDENT TO THE BOARD OF TRUSTEES in the years 1890, 1891, 1893, 1902, and 1916.

THE SUMMER SCHOOL PROGRAM for the nine years ending in 1903.

CLARK UNIVERSITY, 1889-1899. DECENNIAL CELEBRATION. 8 x 11 inches, 566 pages. Price, \$5. Contains the lectures delivered by Professors Picard, Boltzmann, Ramon y Cajal, Mosso, and Forel at the Decennial Celebration, July 1899; also reports by the heads of departments on their aims and ideals, with a list of past and present members of the University and the titles of their published papers.

PROCEEDINGS OF THE CHILD CONFERENCE FOR RESEARCH AND WELFARE. Conferences held at Clark University in the summers of 1909 and 1910. Vol. 1, 1909, 257 pages, contains 48 papers on problems relating to child welfare. Vol. 2, 1910, 287 pages, contains 34 papers, on similar subjects. The papers in Vol. 1 were reprinted from the Pedagogical Seminary for September and December 1909, but those in Vol. 2, with one exception, have not been printed elsewhere. Price, \$2 per volume in paper, \$2.50 in cloth.

LECTURES AND ADDRESSES DELIVERED BEFORE THE DEPARTMENTS OF PSYCHOLOGY AND PEDAGOGY IN CELEBRATION OF THE TWENTIETH ANNIVERSARY OF THE OPENING OF CLARK UNIVERSITY. 175+80 pages. Price, \$2.

LECTURES DELIVERED AT THE CELEBRATION OF THE TWENTIETH ANNIVERSARY OF THE FOUNDATION OF CLARK UNIVERSITY UNDER THE AUSPICES OF THE DEPARTMENT OF PHYSICS. 161 pages. Price, \$2.

CHEMICAL ADDRESSES DELIVERED AT THE SECOND DECENNIAL CELEBRATION OF CLARK UNIVERSITY, IN SEPTEMBER 1909. 192 pages. Price, \$2.

PUBLICATIONS OF THE CLARK UNIVERSITY LIBRARY, edited by the Librarian. Occasional papers and addresses. Now in the sixth volume.

THE JOURNAL OF INTERNATIONAL RELATIONS. This publication was begun in July 1910 as The Journal of Race Development, and continued under that title until 1919. Until 1920 it was unofficially connected with the Department of History and International Relations. It is now an official University publication. It is edited by Professor George H. Blakeslee with the co-operation of a board of contributing editors. It offers itself as a forum for the discussion of international problems, and aims to

present the essential facts in the most important international issues, as well as critical reviews of the new volumes in its field. Published quarterly, each number containing about 125 pages. Price, \$3 per volume; 75 cents per number.

JOURNAL OF APPLIED PSYCHOLOGY. This journal has been published quarterly, beginning March 1917. Until 1920 it was unofficially connected with the Department of Psychology. It is now an official University publication. It is edited by Professor James P. Porter with the coöperation of contributing editors. It aims to be a medium for original investigations on the practical problems of Psychology, and to digest the literature in its field through book reviews and summaries of articles appearing in other periodicals. Each volume of four issues will contain about 400 pages. Price, \$4 per volume; single copies, \$1.25.

The following publications were, until 1920, unofficially connected with departments of the University:

THE AMERICAN JOURNAL OF PSYCHOLOGY. 1887-1920.

THE PEDAGOGICAL SEMINARY. 1891-1920.

The Undergraduate School (Clark College)

ADMINISTRATION

COLLEGIATE BOARD

THE PRESIDENT OF THE UNIVERSITY
THE COLLEGIATE DEAN
THE COLLEGIATE REGISTRAR
PROFESSOR AMES
PROFESSOR BRACKETT
PROFESSOR CHURCHMAN
PROFESSOR GODDARD
PROFESSOR MERIGOLD
ASSISTANT PROFESSOR RICE

Collegiate Dean, PROFESSOR JAMES P. PORTER.

Collegiate Registrar, ASSOCIATE PROFESSOR C. E. MELVILLE

STANDING COMMITTEES

EXECUTIVE COMMITTEE*: THE PRESIDENT, THE DEAN,
THE REGISTRAR, MESSRS. BLAKESLEE, BRACKETT,
CHURCHMAN, AMES, MERIGOLD.

ON ADMISSIONS: THE PRESIDENT, THE DEAN, MESSRS.
FRENCH, BRACKETT, HANKINS, MELVILLE.

ON STUDENTS' STANDING: THE PRESIDENT, THE DEAN,
THE REGISTRAR, AND THE INSTRUCTORS AND ADVISERS
OF THE STUDENTS UNDER CONSIDERATION.

ON CURRICULUM: THE DEAN, MESSRS. CHURCHMAN, FIELD,
DODD, MERIGOLD, RANDOLPH, WILLIAMS.

ON STUDENTS' FINANCES: MESSRS. RANDOLPH, BRACKETT,
WILLIAMS.

ON SUMMER STUDY: THE PRESIDENT, THE DEAN, MESSRS.
AMES, MELVILLE, MERIGOLD.

*Superseded by the Collegiate Board, 1921.

ON COÖPERATION WITH STUDENTS: MESSRS. BLAKESLEE, RICE, WHITMAN, HILMER.

ON PUBLIC LECTURES: MESSRS. AMES, BLAKESLEE, BRACKETT.

ON SOCIAL AFFAIRS AND PUBLIC OCCASIONS: THE DEAN, MESSRS. GODDARD, BARNES.

ON FINE ARTS: MESSRS. BRACKETT, AMES, DODD.

ON THE DINING HALL: THE PRESIDENT, THE DEAN, MR. FRENCH.

ON ATHLETICS: MESSRS. WHITMAN, BRACKETT, FRENCH, BLAKESLEE, WILLIAMS.

ON STUDENT GOVERNMENT: THE DEAN, MESSRS. MERIGOLD, RANDOLPH.

THE COLLEGE

The unique features of the College are its three year course leading to the degree of Bachelor of Arts and its flexible system of admissions. While other institutions have permitted ambitious and able students, as a special privilege, to meet their requirements for graduation in three years, Clark has adopted the three year course as the normal one for the baccalaureate degree.

This innovation was in part due to the emphasis placed upon a three year course in the will of the Founder, and in part the result of a conviction that properly prepared students could, under favorable conditions, secure in three years a training which would not be in any substantial degree inferior to that ordinarily obtained in a four year college course. It has been the announced intention to accept only students of good ability who seem likely to devote themselves seriously to their work; and to retain in the three year course only those who can satisfy a fairly high requirement in scholarship. Provision is made for courses of three and a half or four years when students voluntarily elect to take longer than the three years of the normal course, or when the Faculty decides that this is desirable.

The College has adequate financial resources, a competent faculty, large in proportion to the number of students, and is well equipped for the work which it undertakes. It especially commends itself to earnest young men who wish to economize either

time or money. In accordance with the expressed wish of the Founder, the tuition and other expenses have been kept as small as possible. It offers a general and well balanced undergraduate curriculum leading to the degree of Bachelor of Arts. It does not offer distinctive vocational or professional work. Certain departments, particularly the Department of Chemistry, have, however, been able to give a training which has enabled students to take up professional employment immediately after graduation. Certain preprofessional programs designed especially for those who plan to enter professional schools after completing the college course are described in the announcements of the departments concerned.

A complete statement in regard to fees and expenses, scholarships, and general conditions of work will be found on pages 19-25.

ADMISSION

Two classes of students are admitted to the college:

1. Regular students, candidates for the Bachelor of Arts degree, who must have completed a high school course or its equivalent.
2. Special students, who in general are somewhat older than the candidates for the Bachelor's degree and who are qualified to study, with profit, certain subjects included in the curriculum.

It has been the practice to regard every admission as an "admission on trial" to the actual work of the College. A student whose record fails to meet the expectations implied by his admission may be required to withdraw at any time. No applicant will be admitted to trial who seems unlikely to obtain the Bachelor's degree in three years, and no applicant will be admitted with conditions to be made up after entrance.

Applications for admission should be made as early as is practicable, on blanks supplied by the College. Applicants should present themselves in person, if possible, to a member of the Committee on Admissions. The official transcript of the applicant's preparatory school record and the certificate of character which is required should preferably be sent directly to the College by the school official who signs them. Blank forms for this purpose will be furnished on request.

ADMISSION TO THE FRESHMAN CLASS

The requirements for admission as a regular student are:

1. Graduation from an approved New England high school or institution of like standards with a course representing not less than fifteen acceptable units of school work, or the substantial equivalent of such preparation.

NOTE 1. No preparatory school will be regarded as approved which requires for graduation less than four full years of study after the usual grammar school course.

NOTE 2. The standard unit of quantity in preparation is a quarter of a year's work, the amount of work usually covered in a subject taken four or five times a week through a year of thirty-eight to forty weeks with recitation periods of not less than forty minutes.

2. Creditable standing in the preparatory school. This is generally interpreted to mean that at least two thirds of the units presented must have received a grade which the school gives for work which it is willing to "certify" for admission to college. Applicants who have made an exceptionally creditable record in their preparatory school courses may be admitted with only fourteen units.

3. A reasonable distribution of the units offered among the subjects included in the high school curriculum and a reasonable amount of continuity. A single year's work in a foreign language is usually not regarded as an acceptable unit in meeting requirements for admission.

Applicants whose preparation has been irregular or not up to the standard specified above will be accepted, if at all, only after a thorough consideration of each individual case by the Committee on Admissions, and after the satisfactory meeting of such additional requirements as the Committee may impose. These additional requirements may take the form of examinations or the completion of additional preparatory work. Satisfactory grades in the "comprehensive examinations" given by the College Entrance Examination Board are generally acceptable in lieu of the required grades in the high school record.

ADMISSION TO ADVANCED STANDING

A student who wishes to enter the College after previous study at another institution of the same grade is required to submit a letter of honorable dismissal, a complete transcript of his record

at the last institution attended and such other information as the Committee on Admissions may request. If he is admitted he will be provisionally assigned to either the freshman, junior, or senior class and will be permitted to register for such courses as he is prepared to undertake. He will not be given a final class rating or a definite amount of credit for work done elsewhere until he has been in residence for at least one semester. After satisfying this requirement as to residence he will be given credit for the work done at any other institution to an amount depending in each case upon the time spent upon it, the grade received, and upon the record made here. Such credit is granted by vote of the Collegiate Board upon the recommendation of the Registrar.

The Bachelor's degree will not be conferred upon a student who has not spent at least a year in residence here, and usually not unless the time spent in residence includes the two semesters immediately preceding the granting of the degree.

ADMISSION OF SPECIAL STUDENTS

Mature persons who desire to pursue particular studies, but who on account of age, or for other reasons, are not candidates for admission as regular students, may be admitted as special students. They must pay the full tuition fee, and must conform to the general regulations of the University, but are not candidates for a degree.

FACULTY ADVISERS

When a student is accepted by the Committee on Admissions he is assigned to a member of the Faculty who will act as his adviser. The adviser will assist the student in making up his program of studies for registration and will be ready at all times to afford him help and counsel, either in regard to problems of the student's college life or other matters. The student should consult with his adviser as soon as possible in order to outline his program of studies before the opening of the college year. In all cases of action directly affecting a student the adviser is his representative before the Faculty and will present the student's views and desires.

REGISTRATION

Registration of the program of studies is required on the first day of the academic year, and in case of any change of program

for the second semester on the first day of the semester. Due notice is given by the Registrar in advance of these dates in regard to the detailed procedure of registration.

During the first two weeks of any semester changes of courses may be made for sufficient reason with the written approval of the student's adviser and the instructors concerned. After the first two weeks of any semester no changes may be made except such as are authorized by special vote of the Faculty or of the Collegiate Board.

The election of a *major* and a *minor* is required as a part of the registration at the beginning of a student's second year in college. This election when once recorded may be changed only at the beginning or end of a semester, and then only with the approval of the Dean. Although the *major* and the *minor* are not officially regarded as fixed until the student's second year in college he should plan his course from the beginning as definitely as possible with his probable choice in view. This is desirable in order that he may make sure of securing the required number of hours credit in the *major* without undue concentration on that single subject in the last year of his course.

THE CURRICULUM

Regular students normally carry programs which yield a credit of eighteen semester hours for each semester, in addition to the required work in Physical Training. These programs may include lectures, recitations, or work in laboratories. In general it is expected that all courses will require two hours of preparation for each lecture or recitation. Three hours are assumed for each laboratory period which is counted as the equivalent of an hour of recitation and its two hours of preparation. A student carrying the regular program of eighteen hours should expect his college work to require about fifty-four hours of his time per week, in addition to the work in Physical Training.

The curriculum is arranged upon a plan which permits considerable freedom of adjustment to individual differences of interest. Each student's program of studies contains two principal subjects (a *major* and a *minor*) together with required courses in English and certain subjects chosen in accordance with rules intended to insure a reasonable distribution of work among the

various departments. A large part of each program is made up of courses chosen without restriction.

A *major* consists of at least twenty-four semester hours and a *minor* of at least eighteen semester hours made up of such courses as are specified in the announcements of the various departments.

In order to facilitate the statement of requirements, the departments of instruction are grouped in three divisions:

DIVISION A

Biology, Chemistry, Mathematics, Physics.

DIVISION B

Education and School Hygiene, Geography, History and International Relations, Political and Social Science, Psychology.

DIVISION C

Ancient Languages, English, German, Romance Languages.

A student may choose his *major* in any one of the thirteen departments and his *minor* in a related department. The choice of *major* and *minor* usually involves certain specific requirements in other subjects. For these and for statements as to what particular courses may be used for a *major* or a *minor* the announcements of the different departments should be consulted.

An undergraduate student may enter any course listed for undergraduates, or for advanced undergraduates and graduate students, for which, in the judgment of the instructor in charge, he may be prepared. Undergraduates are not admitted to courses primarily for graduate students except in rare cases, and then only by special vote of the Collegiate Board.

PREPROFESSIONAL PROGRAMS

The preprofessional programs announced by certain Departments are obviously not the only programs which may be followed with profit by students who expect to carry on professional study after graduating from the College. They represent, however, the judgment of certain members of the Faculty as to the best combinations of courses for the purposes stated. Because of unforeseen changes and conflicts, it is rarely possible to follow these programs precisely. They should accordingly be regarded as suggestive rather than binding.

The completion of a preprofessional program will not entitle a student to receive the Bachelor's degree unless he has met all of the requirements for that degree as stated on pages 35-37, with the exception that a student who elects one of the programs headed CONSULAR AND DIPLOMATIC SERVICE, FOREIGN COMMERCE, or BUSINESS may substitute Spanish for the requirement in French or German.

PHYSICAL TRAINING

Physical Training, three hours per week, is required of every student in the College, unless excused for adequate reasons.

The purpose of the requirement is to insure the healthy muscular exercise which every student needs from day to day, and to bring about such a general physical condition as will lay the foundation of future health and make of the body a ready servant of the mind rather than a drag and hindrance to it. With these ends in view some portion of the time is given to setting-up exercises and other forms of gymnastic drill; but a still larger portion to games and sports so arranged that all can take part in them, or to group contests in which the participants are so graded that each will compete with others of about his own ability. It is intended that the element of free and hearty physical play shall be a characteristic feature of the course as a whole, but a definite series of progressive exercises will also be given, and there will be opportunity for those who desire to do so to become skillful in dancing, boxing, wrestling, fencing, club-swinging, and gymnastic feats. From the point of view of the Faculty the course in Physical Training is a required course in the full sense of the word; attendance is recorded and marks are assigned; and slack work in it will have the same consequences as deficiencies in other parts of the curriculum.

The hours at which the work in Physical Training is given are set at times which avoid conflict with recitation hours.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

1. A minimum period of study in residence of three academic years.
2. A minimum of one hundred and eight semester hours of credit with an average grade of B—, or better, including:

- a. A *major* of not less than twenty-four semester hours.
- b. A *minor* of not less than eighteen semester hours.
- c. *Greek*, or *Latin*, or *Mathematics*, or *advanced modern foreign language*, six semester hours.

For a student whose *major* lies in Division A, this credit must be in Mathematics, taken in the first year of his course.

For a student whose *major* lies in Division C, this credit must be in Greek or Latin. A student who has offered two units of Greek or Latin for admission is excused from the requirement in these languages. If this requirement is met in college, the course must be taken in the first year. For a student whose *major* lies in Division B, this credit may be in Greek, Latin, Mathematics, or *modern* foreign language, subject to the approval of the Department in which the *major* lies. If the option of a *modern* foreign language is chosen, a course of a grade of advancement not below that of the third year college courses must be offered in addition to the general foreign language requirements specified under e and f.

- d. *English*, twelve semester hours, including English 11 required in the first year, and six semester hours additional in English Literature, required in the first or second year of the course.
- e. *French* or *German*, nine semester hours.

A student who has offered two units of French or of German for admission is excused from six semester hours of this requirement; one who has offered three or more units of French or of German is excused from the whole of the requirement.

A student who elects to take one of the preprofessional programs headed CONSULAR AND DIPLOMATIC SERVICE, FOREIGN COMMERCE, or BUSINESS may substitute Spanish for French or German.

- f. Additional *foreign language*, nine semester hours. This requirement may be met in whole or in part by *modern language* offered for admission on the basis indicated in the previous section.
- g. *Physical Training*, three hours per week, through the course.

CLARK COLLEGE

Revised requirements for the A.B. degree, effective beginning with the class entering in September, 1921. (Superseding paragraphs a to i, on pages 36 and 37, May 1921 Catalogue)

1. A major of not less than 24 semester hours. (Maximum allowed in major subject, 42 hours)

- a. A student who expects to major in Division A (Science) is required to take Mathematics 11 or 18 in the first year of his course.
- b. A student who expects to major in Division C (Language and Literature) is required to take a 3 hour course in Greek or Latin in the first year of his course, unless 2 years of Greek or Latin have been accepted for admission.
- c. A student who expects to major in Division B is required to take Mathematics or Greek or Latin as specified above, or a modern language course of a grade of advancement not below that of the 3rd year college courses; the choice being subject to the approval of the Department in which the major lies.

2. A minor of not less than 18 semester hours. (Subject to be determined by the department in which the major lies.)

3. English

- a. Course 11, required of all students in first year.
- b. 3 hours of English required thruout the second year. One semester of this work must be in literature; the other semester must be in English 16 for all but those who do exceptionally well in English 11; these may elect either literature or composition.

4. Mathematics.

- a. One elementary 3 hour year course is required of all students who have not completed at least 2 years of High School algebra or geometry. A division of this High School work between the two subjects is permitted.
- b. See 1 (a) above.

5. Foreign Language. A total of 24 hours is required, which must be divided between two languages with not less than 6 hours in each. This total may be diminished by acceptable high-school credits in language on the following basis: 6 hours for 2 years high school work in any one language; 12 hours for 3 years; 18 hours for 4 years.

Language work taken in fulfillment of 1 (b) or 1 (c) may also count toward this total of 24 hours.

6. Division A (Science & Mathematics) From 6 to 18 semester hours is required in college, depending upon the amount of credit in science accepted for admission.

6 hours of this must be in a laboratory course in Biology, Chemistry or Physics.

Not more than 6 hours of the required work in Division A may be in the same subject.

Mathematics taken in fulfillment of 1 (a) may count toward this total.

7. Division B. From 6 to 18 semester hours is required depending upon the amount of credit in corresponding subjects accepted for admission.

If more than 6 hours is required, the work must be divided between 2 departments, with at least 6 hours in one of them.

8. Physical Training. 3 hours per week thruout the course.

The following statement has been prepared in order that all persons interested might be fully informed as to the requirements for graduation under the regulations now in force.

Dec.15,1922

C.E.Melville, Registrar

Requirements for Graduation-Clark College

Class of 1923.

- a. 108 semester hours for 3-year students and 120 semester hours for 4-year students, including all of the subjects required by regulations printed in the May 1921 catalog.
- b. For 3-year students, an average rank not lower than Group III in all college work completed after Sept.20,1922.
For 4-year students, an average rank not lower than Group III in three-fifths of all the college work completed after Sept.20,1922.

Class of 1924.

- a. 108 semester hours for 3-year students and 120 semester hours for 4-year students, including all subjects required by the regulations printed in the May 1922 catalog.
- b. For 3-year students an average rank not lower than Group III in all college work completed after September 20,1922.
For 4-year students, an average rank not lower than Group III in three-fifths of all the college work completed after Sept. 20, 1922.

Class of 1925 and Succeeding Classes

- a. 120 ~~108~~ semester hours for all students, including all of the subjects required by the regulations of the College.
- b. An average rank not lower than Group III in three-fifths of the 120 hours required for graduation.

Notes:

- a. A student on the 3-year basis will, as a rule, carry a program of 18 or more hours per week and is required to maintain a rank in Group II or better in two-thirds of his work. Additional credit is given for high rank on the basis of one-half semester hour for each rank in Group I, and one-fourth semester hour for each rank in Group II in a three-hour course. A rank in Group IV cancels to the extent of one-half hour any extra credit resulting from ranks in Groups I or II in the same semester. A program of 18 hours a week carried through 3 years will under the above arrangements yield a total credit of 117 semester hours if a rank in Group II is secured in all courses, leaving 3 hours additional to be provided at some time during the 3 years. A student who is allowed to carry 18 hours throughout his course will normally have at the end of 3 years not less than 114 semester hours credit.
- b. In order to remain "in good standing" a student must secure a rank in Group III or better in at least 2 courses.
- c. Under the new plan of reporting students' standings the significant fact is the relative rank of a student in each individual course. In all the regulations based upon the new system:

A rank in Group I means "among the first 5 in an average group of 100".

A rank in Group II means "among the first 25 in an average group of 100".

A rank in Group III means "below the best 25 and above the lowest 25 in an average group of 100";

A rank in Group IV means "among the lowest 25 in an average group of 100".

- h. At least twelve semester hours in each division other than that in which the *major* lies.

College credits offered in satisfaction of any of the previous requirements may be counted in satisfaction of this requirement also.

- i. For a student whose *major* is in Division C, there is an additional requirement of twelve semester hours distributed at will in Divisions A and B.

A student who is on a three and a half year basis, or a four year basis, either voluntarily or by action of the faculty, is required to study in residence for the length of time specified and to present a minimum of one hundred and fourteen or one hundred and twenty semester hours respectively, with an average grade of B—, or better, and to meet all the requirements listed above as conditions prerequisite to recommendation for the Bachelor's degree.

The students who satisfy all of the foregoing requirements will be recommended for the Bachelor's degree unless in the judgment of the Faculty there is cause for withholding this recommendation.

A student who has failed to attain the required average, B—, at the end of his course, will not be recommended for the degree until he presents additional credit to an amount depending upon his average grade, according to the following table.

Average Grade	Additional Hours	Average Grade	Additional Hours
81.6	3	79.6	18
81.2	6	79.2	21
80.8	9	78.8	24
80.4	12	78.4	27
80	15	78 (C+)	30

In order to equalize the requirements in respect to the average grade and the credit needed for graduation, a student who carries less than the regular program of eighteen hours per week while on the three year basis must present two semester hours additional credit for each semester completed with the smaller program, without regard to the average grade obtained.

No student will be regarded as having done work of a satisfactory character if his record for the course shows a total of more than twelve semester hours of work of D grade, irrespective of his average standing.

HONORS

"First Honors" and "Second Honors" are awarded annually to those members of each class who have, in the judgment of the Faculty, distinguished themselves by their scholarship during the year.

The Bachelor's degree is awarded "With Honor," "With High Honor," and "With Highest Honor" to those members of each graduating class who have made the most creditable records.

In 1914 the Clark Scholarship Society was organized. The society is similar in aims to the Society of Phi Beta Kappa. Its object is, "to maintain a high and broad conception of scholarship; to encourage devotion to scholarship, so conceived; to promote a close relation for mutual benefit between the undergraduate members and the faculty members of the Society." Membership in the Society is open to members of the faculty. New student members are normally elected at the end of each year from among the men of high standing in the junior class. The Faculty makes nominations and the undergraduate members of the Society elect from the men so nominated. Additional nominations are made at the middle and end of the senior year.

GRADES

At the end of each semester the instructors report to the Registrar on the work of the students in their courses, using the descriptive terms *excellent*, *good*, *fair*, *poor*, and *failed*, indicated respectively by the symbols A+, A, and A—; B+, B, and B—; C+, C, and C—; D+, D, and D—; and E. These semester grades constitute the record upon which various "honors" and scholarships are awarded, and upon which the number of semester hours required for graduation depends. Work reported as "failed" gives no credit towards graduation. Three times during each semester, at intervals of about six weeks, reports of progress characterizing the work of the students for the preceding period are also made in the same terms.

The standard grade is B—. A student whose average grade for the course is B—, or better, is graduated with the minimum number of semester hours required by his classification under the headings, *three year students*, *three and one half year students*, or *four year students*. A student whose average grade for the course

is below B—, is required to complete an additional number of semester hours beyond the minimum number required by his classification, as explained on page 37.

A student whose average grade falls at any time below C+ will be regarded as so far below standard as to make him liable to exclusion from the college.

The use of numerical equivalents for the grades described above in the statement of the requirements for graduation, does not indicate that instructors are expected to grade on a numerical basis. These equivalents are used merely as a convenient means of comparing students' records one with another in administering the rules of the faculty. The figures used for this purpose are:

Grade	Numerical Equivalent	Grade	Numerical Equivalent
A+	102	C+	78
A	98	C	74
A—	94	C—	70
B+	90	D+	66
B	86	D	62
B—	82	D—	58
		E	54

It is obvious that the average for the course cannot be calculated earlier than the end of the third year. At the end of each year a written statement will be made by the Registrar to each student who is deficient, showing the amount of extra work for which he will be held if his average remains the same at the end of his course.

A student thus notified may provide additional credit by work in an approved summer school, or may, at his own risk, trust to his ability to escape the requirement by securing higher grades in the remainder of his course. A student whose deficiency is large may find it advisable to readjust his plans to provide for a longer period of residence with a reduced weekly program. The maximum credit which can ordinarily be secured by summer study is six semester hours.

STUDENT LIFE

It has always been the policy of the University to give to its students the greatest possible individual liberty of action and to adopt few rules of conduct.

It is assumed that each student will conform to the recognized standards of morality, good order, and gentlemanly conduct

that he will not absent himself without excuse from university exercises at which he is due, and that he will give his serious and constant attention to his work as a student.

While encouraging the fullest possible measure of student self-government, the College recognizes the fact that individuals and groups among the undergraduates require a reasonable amount of oversight in their various undertakings.

Undergraduate organizations are under such control as will insure proper caution and recognition of responsibility in business dealings.

The general supervision of intercollegiate athletics is committed to an Athletic Board consisting of the Director of Physical Training, and nine student members. The actions of this Board are subject to review and veto by the Committee on Athletics of the faculty.

Two formal dances, the junior-freshman "Prom" in the winter, and the "Senior Prom" at Commencement time, in addition to informal dances, "Bohemians," held about once in six weeks, give opportunity for relaxation and the meeting of students and faculty on a basis of general sociability. Additional opportunities of this sort are provided by the "College Suppers" held at the Dining Hall about once a month, and by various clubs such as the Science Club, the Wireless Club, the Psychology Club, etc., in which both students and faculty participate.

Much of the social life of the undergraduate students centers about the four fraternity houses.

Student activities include a Glee Club and Orchestra which give a series of concerts in Worcester and elsewhere during the winter; a Debating Society whose members have made an enviable record for the University in intercollegiate debates; the Gryphon, a senior honor society, and many other organizations.

On Sub-Freshman Day, in the spring, those who have some expectation of entering the College in September are guests of the University for the purpose of establishing mutual acquaintanceship.

THE CLARK COLLEGE MONTHLY is a magazine which was established in 1911 to provide a means of publication for the literary productions of members of the College and a forum for the expression of college sentiment, and to furnish its readers with the latest information about the life of the institution. The editorial and business management is in the hands of a student board.

The Graduate School

ADMINISTRATION

Prior to the reorganization of the University in the second semester of the academic year 1920-21, the graduate faculty was organized upon the following plan:

SENATE

THE PRESIDENT OF THE UNIVERSITY
WILLIAM EDWARD STORY
EDMUND CLARK SANFORD*
ARTHUR GORDON WEBSTER
HENRY TABER
WILLIAM HENRY BURNHAM
GEORGE HUBBARD BLAKESLEE
RALPH STAYNER LILLIE†
CHARLES A. KRAUS
FRANK HAMILTON HANKINS*
EDWIN GARRIGUES BORING

OTHER MEMBERS OF THE GRADUATE FACULTY

JOSEPH DE PEROTT
LOUIS N. WILSON
FRANK BLAIR WILLIAMS

Following the union of the graduate and undergraduate faculties, the immediate control of the work of the Graduate School is vested in the Graduate Board.

GRADUATE BOARD

THE PRESIDENT OF THE UNIVERSITY
WILLIAM EDWARD STORY
EDMUND CLARK SANFORD*
ARTHUR GORDON WEBSTER
HENRY TABER
WILLIAM HENRY BURNHAM
GEORGE HUBBARD BLAKESLEE
CHARLES A. KRAUS

*Absent on leave, 1920-21.

†Resigned, Oct. 31, 1920.

FRANK HAMILTON HANKINS*
 EDWIN GARRIGUES BORING, Secretary
 HARRY ELMER BARNES†
 GEORGE FREDERIC WHITE†

GENERAL INFORMATION

The courses in the Graduate School are open to properly qualified persons, both men and women.

Instruction and opportunities for original research leading to the degrees of Master of Arts or Doctor of Philosophy are offered by the following departments:

Chemistry
 Education and School Hygiene
 Geography
 History and International Relations
 Mathematics
 Physics
 Political and Social Science
 Psychology

The other departments offer courses of an advanced nature which, with the consent of the Graduate Board, may be included in the programs of graduate students, but are not prepared at present to offer complete programs leading to the higher degrees.

A complete statement regarding tuition and expenses, Fellowships and Scholarships, and general conditions of work will be found on pages 19-25.

ADMISSION

CANDIDATES FOR GRADUATE DEGREES

Only college graduates or those of equivalent attainments are admitted as candidates for degrees in the Graduate School, except in special cases.

No entrance examinations are required; but by testimonials, diplomas, personal interviews, or written specimens of work, the authorities must be satisfied that the applicants have scholarship enough to work to advantage, and zeal to devote themselves to their chosen field.

*Absent on leave, 1920-21.

†Elected, April 12, 1921.

It is highly desirable that candidates should have a reading knowledge of French and German.

SPECIAL STUDENTS

In addition to those who are candidates for the advanced degrees, the Graduate School admits others desiring to undertake advanced study or original research, whose attainments are such as to qualify them for the work proposed. Such persons, provided they satisfy the departments concerned as to their training and competency in the subjects to which they wish to devote themselves, are not restricted in their choice and combination of studies. These students may, with the approval of the President, be received for less than an entire year.

HONORARY FELLOWS

Those who have already advanced to the Doctor's degree may be appointed Honorary Fellows and given all the privileges of the University. In past years many who have already taken this degree, either in this country or abroad, have found these appointments advantageous while waiting for collegiate and university appointments elsewhere.

METHODS OF WORK

For the graduate students who are admitted it is the purpose of the University to open all its privileges and to supply every incentive possible in the way of books, apparatus, and, above all, direct personal stimulus. The limited number of students permits more or less personal instruction in each case with daily suggestions, encouragement, and direction.

No clearly marked line exists between students and instructors. Students who have attained some degree of mastery in a special line of work sometimes give brief special courses, which may be attended by professors. This is a stimulus to the student, and both tests and exhibits power in teaching.

In addition to lecture and laboratory courses and bibliographical work at the Library, each department conducts one or more *Seminars* or *Conferences*. These are stated meetings for joint systematic work, under the personal direction of some member of the faculty. At these meetings, students preparing

theses and papers for publication read them sometimes in incomplete form for mutual criticism and help. Here, also, the results of individual reading are reported for the benefit of all, views are freely criticized, new inquiries, and methods, comparisons, points of view, etc., are suggested. From the mutual stimulus thus given great individual benefits are derived and the work of the department is stimulated.

Any department may, with the approval of the President, bring experts for lectures of a special nature at any time during the academic year.

LIBRARY FACILITIES

In addition to the library facilities provided by the University (see pages 64-66), students may avail themselves of the privileges of several other excellent libraries in the city. The Worcester Public Library contains some 237,000 volumes and makes accessible to the public about 600 newspapers and magazines. The library of the American Antiquarian Society, housed in the national headquarters of the society in Worcester, contains about 136,000 volumes and some 202,000 pamphlets. The library of the Worcester District Medical Society is also at the disposal of members of the University.

THE DEGREE OF DOCTOR OF PHILOSOPHY

It is to the needs of candidates for this degree that the lectures, seminaries, laboratories, collections of books, apparatus, etc., are especially shaped, and no pains will be spared to afford them every needed stimulus and opportunity. It is for them that the Fellowships and Scholarships are primarily intended, although any of these honors may be awarded to others.

At least one year, but in most cases three years, of graduate work are necessary for this degree. Candidates must have previously taken the degree of Bachelor of Arts or have had a substantial equivalent for the training implied by that degree.

For this degree one requirement is a dissertation upon an approved subject, to which it must be an original contribution of value. To this capital importance is attached.

Such formal or informal tests as the faculty may determine shall mark the acceptance of each student or Fellow as a candidate for this degree.

An oral, but no written, examination is required upon at least one minor subject in addition to the major before an examining jury composed of at least four members, including the head of the department and the President of the University, who is authorized to invite any person from within or without the University to be present and to ask questions. The jury shall report the results of the examination to the Graduate Board, who will recommend satisfactory candidates for the degree.

RULES CONCERNING THE DEGREE OF DOCTOR OF PHILOSOPHY

1. *Residence.* No candidate shall receive the degree of Doctor of Philosophy without at least one academic year's previous residence.

2. *Candidature for the Doctor's Degree.* Every applicant for the Doctor's degree shall fill out, before October fifteenth, the regular application blank provided at the office. This schedule shall be submitted to his chief instructor, who shall before affixing his signature satisfy himself, in such manner as he may desire as to the fitness of the applicant.

3. When countersigned, this schedule shall be filed with the President, and the applicant will be examined in French and German by the annual committee for that purpose.

4. In case of a favorable report by this committee, the applicant shall be a regular candidate for the degree.

5. Candidates complying with all preliminary conditions, including the examinations in French and German, before November first will be allowed to proceed to the Doctor's examination at any time between May fifteenth following and the end of the academic year.

6. *The Doctor's Dissertation.* The dissertation must be presented to the instructor under whose direction it is written, and reported upon by him before the Doctor's examination. In every case the dissertation shall be laid before the jury of examination, at the time of examination, in form suitable for publication, although this provision shall not preclude the making of such minor changes later as the chief instructor may approve. This copy of the dissertation shall be deposited in the Library, not to be taken out until the final form is substituted.

7. The dissertation, or an abstract that has been approved by the chief instructor as embodying and emphasizing the essen-

tial original contribution to knowledge contained in the dissertation, shall be printed at the expense of the candidate, and one hundred copies deposited with the Librarian within one calendar year after the first of October following the examination. In the case of dissertations of unusual length, or containing expensive plates, the Graduate Board shall have power, at the request of the candidate, to reduce the number of presentation copies to fifty; and in unusual circumstances the Graduate Board may extend the time allowed for the printing of the dissertation.

8. The candidate shall, at least one week before the conferring of the degree, deposit in the Library the required number of printed copies of the dissertation or abstract, or, in lieu of the printed copies, a written acceptance of the dissertation or abstract for publication within the required time by a responsible editor or publisher; or he shall deposit with the Bursar the sum of seventy-five dollars or an acceptable bond for that amount. No officer of the University is eligible as surety on such a bond. This sum, or bond, shall be returned to the candidate upon the deposit of the printed copies; or, should the copies not be deposited within the required time, it, or such portion of it as is necessary, shall be used to print the dissertation or abstract, and the remainder returned to the candidate. In the case of long dissertations, when a deposit is made or a bond given to insure publication, the candidate shall also be required to deposit with the Librarian such an approved abstract, in duplicate, of the dissertation as may be printed with the amount of the deposit or bond.

9. A candidate, who has not presented the printed copies of the dissertation one week before the conferring of his degree, shall further be required to deposit in the Library with the original copy a duplicate copy of the dissertation. One copy of the dissertation shall be allowed to circulate from the Library under such conditions as the Librarian may deem advisable; the other copy shall not be withdrawn. Both copies may, however, be replaced by a printed copy if the dissertation is printed in full; but they may not be replaced if an abstract is printed instead of the complete dissertation.

10. The favorable report of the chief instructor filed in writing with the clerk of the University, shall be a sufficient imprimatur or authorization for printing as a dissertation. The printed copies

shall bear upon the cover and title page the statement of approval in the following words, over signature of the chief instructor:

A Dissertation submitted to the Faculty of Clark University,
Worcester, Mass., in partial fulfillment of the requirements for the
degree of Doctor of Philosophy, and accepted on the recommendation of

(NAME OF CHIEF INSTRUCTOR)

11. *Examinations for the Doctor's Degree.* The examinations for the Doctor's degree may be held at any time during the academic year, provided that at least one academic year has elapsed since the completion of the preliminaries of candidature, except in the case of fulfillment of these conditions between the beginning of any academic year and November first of that year, to which case Rule 5 applies. The examinations shall be held at such hours and places as the president may appoint.

12. Examinations may also be held during the regular vacations of the University, but for these an additional fee of five dollars to each examiner and the reasonable traveling expenses of any examiners who are out of town, all payable in advance, will be required.

THE DEGREE OF MASTER OF ARTS

This degree is conferred upon candidates who comply with the following requirements:

1. The candidate shall have previously taken the degree of Bachelor of Arts, or have had a substantial equivalent for the training implied by that degree, to be determined by special vote of the Graduate Board; but such degree or training must involve a good preparation for the work proposed for the Master's degree, in order that it may be accepted.

2. The candidate must devote a full academic year to post-graduate work in this University after receiving the Bachelor's degree or the training accepted as its equivalent. This work shall be mainly in one department, but the candidate may do also such other work as shall be advised by the head of his principal department—whose approval of the whole course shall be necessary. In particular cases, the candidate may be allowed, by special vote of the Graduate Board, to divide his work between two years; but the aggregate must, in all cases, amount to a full year's work, at least.

3. The candidate must satisfy the representatives of his principal department that he has done his work faithfully and has mastered the subjects involved, by such written and oral examinations and other tests as the department may require. His chief instructor shall make a written report to the Graduate Board of the grounds on which the candidate is recommended, specifying the amount and character of his work, and this report shall be filed in the office.

4. The candidate must present a thesis or written report on some topic included in his course or closely related to it, that shall receive the approval of the representatives of his principal department, be accepted by the Graduate Board, and filed in the office.

5. Every candidate recommended for the Master's degree shall pay a fee of ten dollars.

6. The Master's degree will be conferred at the annual Commencement in June of any year on those candidates only who shall have made written application to be considered as such on or before January fifteenth preceding and shall have fulfilled all the conditions here specified at least one week before Commencement, at which time the academic year shall be regarded as ending for the purposes of Rule 2.

The Graduate School of Geography

STAFF

WALLACE W. ATWOOD, PH.D., Professor of Physical and Regional Geography and Director of the Graduate School of Geography.

CHARLES F. BROOKS, PH.D., Associate Professor of Meteorology and Climatology.

ELLEN C. SEMPLE, A.M., Lecturer in Anthropogeography, Summer School, 1921, and first semester, 1921-22.

PRESTON E. JAMES, A.M., Instructor in Geography.

HELEN G. THOMAS, A.B., Lecturer in Geography, Summer School, 1921.

OTHER MEMBERS OF THE UNIVERSITY STAFF OFFERING CLOSELY RELATED WORK

GEORGE H. BLAKESLEE, PH.D., Professor of History and International Relations.

HARRY E. BARNES, PH.D., Professor of History.

FRANK H. HANKINS, PH.D., Professor of Sociology.

HERMANN HILMER, PH.D., Assistant Professor of Economics.

GENERAL STATEMENT

During the last few years the American people have been awakened, in a remarkable way, to an interest in Geography. The period of isolation in national development is passed, and we have come to realize, almost suddenly, that the United States of America is one of the leading nations of the world and vitally interested in almost everything that is going on in the world.

This awakening, and the consequent broadening of our horizon, have forced us to recognize that we have neglected in this country the scientific study of Geography. Many of the universities and colleges of this country are now calling for trained geographers. Commissioners of education, normal schools, and high schools are looking for men or women who can serve as supervisors or as special teachers of Geography. The great business houses, especially those interested in the development of foreign trade, are calling for experts in economic Geography. The large financial

houses are endeavoring to train men in commercial Geography in their own schools. The departments of the Government are now using trained geographers, and the Civil Service Commission has recently recognized the profession of Geography. No one should enter consular or diplomatic service who has not been trained in the geography of this country and in the geography of the world. The intelligent reading of current literature is demanding a greater and greater knowledge of the peoples and of the conditions in distant lands.

In the Graduate School of Geography there will be opportunities given to properly qualified students to secure special training in Geography. The staff will be composed of experts in the various fields of Geography. They must of necessity spend a portion of their time in travel and in field studies, but while in residence, they will offer regular courses of instruction and direct advanced students in research work. It is not the intention to offer all courses of instruction each year; many of them will be given once in two years. Abundant opportunities for instruction will be provided, but graduate students should not burden themselves by attending too many lecture courses. They must depend very largely for their growth upon their individual efforts in the pursuit of research work, under the direction of members of the staff.

Advanced studies in History, Economics, and Sociology, as well as a reading knowledge of the modern languages are important to all students of Geography, and the attention of such students is called to the announcements in those several departments. The map collection and the Library offer unusual facilities for research work in residence, but it is hoped that all graduate students, before completing their University work, may undertake field studies.

The aim in conducting the graduate school of Geography will be to promote in every way possible productive scholarship and to train those who wish to enter the profession to become leaders in their chosen fields of work.

A complete statement regarding tuition and expenses, Fellowships and Scholarships, and general conditions of work will be found on pages 19-25.

COURSES IN GEOGRAPHY

I. PRIMARILY FOR UNDERGRADUATES

III. **PHYSIOGRAPHY** (introductory course). This study is sometimes called physical geography. It will include an analysis of the origin and history of land forms and an outline of the physical conditions in the sea. When taken with a study of the air (Geography 121) a broad, fundamental basis for other studies in Geography may be secured. The influence of exposure to weather conditions, the work of rivers, glaciers, waves, winds, and ground waters will be analyzed in detail, and the history of the land forms due to the work of these agents will be presented. Vulcanism and the great mountain-making and continent-making forces will receive consideration. The great scenic features of this continent, such as the Grand Canyon of the Colorado, the lofty mountains, the great plateaus, Niagara Falls, the Great Lakes, and certain of the shore-lines will be used as the basis for developing many of the principles involved in the origin and history of topographic features. The physiography of New England and of other selected areas will be analyzed in detail. Field excursions will be conducted to illustrate some of the work of the course. (Not open to freshmen.)

MWF, 9; laboratory, 2-4, M or T.

Three hours, second semester.

PROFESSOR ATWOOD

SSI. **ORIGIN AND HISTORY OF LAND FORMS.** Summer school, 1921. This course is similar in many respects to course III. Special emphasis, however, is given to the study of land forms, and the study of the ocean is omitted.

Daily except Saturday at 8.

PROFESSOR ATWOOD

121. **METEOROLOGY.** Daily observation, interpretation, and prediction of local weather. Physical properties of the atmosphere. The elements of temperature, pressure, winds, and moisture of the atmosphere, and their interrelations in various types of weather. How to read and use the weather map. The present status of weather forecasting. Frost, storm, and flood warnings; the work of the U. S. Weather Bureau. The weather factor in agriculture, commerce, aeronautics, and public health. (Not open to freshmen.)

MWF, 9; laboratory, 2-4, M or T.

Three hours, first semester.

ASSOCIATE PROFESSOR BROOKS

SS8. ELEMENTARY METEOROLOGY. Summer school, 1921.
Daily except Saturday at 8. ASSOCIATE PROFESSOR BROOKS

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

215. NATURAL RESOURCES AND THEIR CONSERVATION. (An introduction to economic Geography.) This study will include a careful consideration of the soils, mineral resources, waterways, water-power, and forests of the United States. The extent, distribution, and value of these resources will be treated, and also their uses and misuses. The agricultural and industrial development within this nation is absolutely dependent upon these resources, and a knowledge of this subject is fundamental to all those who wish to pursue specialized courses in economic or commercial Geography. (Undergraduates must secure the permission of the instructor before entering this course.)

Wednesdays, 3-5, and special conferences.

PROFESSOR ATWOOD

216. REGIONAL GEOGRAPHY OF NORTH AMERICA. The fundamental basis for the subdivision of the continent into natural regions will first be treated and later the analysis of the geography of each one of the natural regions will be presented. The study will start with a consideration of the natural regions on the Atlantic border and proceed westward, northward, and southward, until the geography of the entire continent has been presented as fully as possible in the time available. The advantages in pursuing research work or in teaching Geography based upon the regional treatment will be illustrated throughout the progress of the course. This course will alternate with course 215.

Wednesdays, 3-5, and special conferences.

To be omitted in 1921-22.

PROFESSOR ATWOOD

SS2. REGIONAL GEOGRAPHY OF NORTH AMERICA. Summer school, 1921.

Daily except Saturday at 11.

PROFESSOR ATWOOD

224. THE PASSING WEATHER. To explain the features of the passing weather requires investigation deep into every branch of meteorological Physics. The value of such a study transcends its instructiveness to the student: the results cannot fail to advance the science and to provide a surer foundation for forecasting

weather from observations made at one place. Prerequisite: Meteorology.

First semester. To be omitted in 1921-22.

ASSOCIATE PROFESSOR BROOKS

SS3. GEOGRAPHIC FACTORS IN AMERICAN HISTORY. Summer school, 1921. Text-book and lectures. A study of the influence of geographic conditions upon the course of American history; the significance of the continental and interoceanic location of the United States, the influence of this location upon aboriginal and modern culture; the importance of coastlines, mountains, plains, lakes, rivers, climate, soils, vegetation, and geographical area of the country at successive periods of its history; the immediate effects of these natural conditions upon discovery, explorations, settlement, national territorial expansion and economic development, as well as their indirect effects upon social and political development. Attention will be directed also to the interplay of geographic with non-geographic factors.

Daily except Saturday at 9.

MISS SEMPLE

SS4. GEOGRAPHY OF THE MEDITERRANEAN REGION, especially in relation to Ancient History. Summer school, 1921. Lectures and assigned readings. A geographic interpretation of ancient history in Mediterranean lands, embracing a study of the various geographic factors operative in the countries bordering this enclosed sea under the peculiar influences of the Mediterranean climate, at a time when the Mediterranean region constituted most of the known world. The lectures discuss the intercontinental location of the Mediterranean Sea; the barrier boundaries and the breaches in the same; the size, shape, and subdivisions of this marine basin; its relation to the Atlantic Ocean as also to the Red and Black Seas; the prevailing mountainous relief of Mediterranean lands, highly articulated coasts, peninsulas, islands, and continental hinterlands, rivers and river valleys; rainfall, temperatures, and winds; and finally, the effect of these various geographic conditions upon ancient agriculture, stock raising, forestry, industry, navigation, trade, and colonization, besides several other aspects of the economic, social, and political life in this region.

Daily except Saturday at 11.

MISS SEMPLE

SS5. THE GEOGRAPHICAL CHANGES RESULTING FROM THE WORLD WAR. Summer school, 1921. This course has been planned to cover systematically the changes in political boundaries in Europe, Asia, and Africa which have been wrought by the World War and by the peace treaties which brought it to a close. It will include a study of the geography and ethnography of Central and Eastern Europe as a basis for an understanding of the comparative assets and liabilities of the new nations which have been carved from the former empires of Russia, Austria-Hungary, and Germany. The disposition of the former German colonies in Africa and other parts of the world will be treated, and special attention will be given to their economic and strategic value to their new owners. The course will be concluded with a brief study of the geographic reasons underlying the desires of the European powers for spheres of influence in Asia.

Daily except Saturday at 9.

MRS. THOMAS

225. CLIMATOLOGY. Climatology provides a systematic basis for studying particular climates. Thus, it deals with the manifold combinations of the weather elements—particularly, temperature, atmospheric moisture, and winds—and their classification; e. g., into solar, continental, marine, and mountain climates. At the close of this course the student should be able to give the essential features of the climate of any region when it is described to him merely in terms of latitude, position relative to large continental and water surfaces, altitude and surrounding topography.

MWF, 11, first semester. Laboratory hours to be arranged at the convenience of instructor and students.

ASSOCIATE PROFESSOR BROOKS

226. CLIMATES OF THE WORLD. The climates of the world are studied in a comparative way, especially to make manifest the similar human responses to similar climates in widely separated parts of the world, and local peculiarities and effects. Changes of climate in geological and historical time, and their importance in man's development and migrations are discussed. Prerequisite: Climatology.

MWF, 11, second semester. ASSOCIATE PROFESSOR BROOKS

SS9. CLIMATES OF THE WORLD. Summer school, 1921.

Daily except Saturday at 10. ASSOCIATE PROFESSOR BROOKS

234. GENERAL PRINCIPLES OF ANTHROPOGEOGRAPHY. This course considers the operation of geographic factors in the economic, social, and political development of peoples; the influences of location, area, relief, coastline, drainage systems, climate, and other geographic conditions, both separately and in their mutual interplay. Ellen C. Semple's *Influences of Geographic Environment* will be used as a text.

MWF, 10, first semester.

MISS SEMPLE

235. GEOGRAPHY OF EUROPE. This course will include a study of the area, location, climate, coasts, and relief of Europe. It will emphasize the operation of geographic factors (1) in the movement and distribution of races in this continent; (2) in the origin, progress, and expansion of European civilization; (3) in the economic, social, and territorial development of European states.

Mondays, 3-5, first semester.

MISS SEMPLE

244. REGIONAL GEOGRAPHY OF SOUTH AMERICA. This course will emphasize the physical setting of the South American continent. The place of South America in relation to North America and the rest of the world will be shown. The general relation to the climatic zones, and a résumé of the larger topographic features will be followed by a more detailed study of the continent, in which the division into natural regions will form the basis of study. In each region the reaction of the inhabitants to the physical environment and the interplay of influences leading to the conditions of the present day will be discussed. There will be a summary of the economic resources of each region, and the manner in which they have been utilized. The effect of the war on the several countries will be considered, and the course will be concluded with a few glances into the future. Comparison with familiar points in the United States will be made frequently throughout.

MWF, 10; laboratory hours to be arranged; second semester.

MR. JAMES

SS7. GEOGRAPHY OF SOUTH AMERICA. Summer school, 1921. This course is essentially the same as Geography 244.

Daily except Saturday at 12.

MR. JAMES

264. ECONOMIC GEOGRAPHY OF EUROPE. A study of Europe from an economic point of view; its configuration and physical features, climate, resources of the soil and subsoil, races and

nationalities, industries and commerce, in their relation to America and the world. Lectures, reports, and discussion.

Mondays, 3-5, second semester. ASSISTANT PROFESSOR HILMER

3. PRIMARILY FOR GRADUATE STUDENTS

317. **PHYSIOGRAPHY OF THE UNITED STATES.** This course will be an intensive and critical study of the physiographic evolution of the land forms in each of the natural regions of this country. It is planned for those students who wish to secure special training in Physiography and who are sufficiently familiar with Geology and the principles of Physiography to review all important contributions to this field of study. Prerequisite: Geography III, and a course in general Geology, or equivalent training.

To be omitted in 1921-22.

PROFESSOR ATWOOD

318. **THE TEACHING OF GEOGRAPHY.** This course will survey briefly the evolution of pedagogical method in Geography teaching in Europe and America in the past forty years, and will develop in detail the newer methods which are being advanced today. Among the detailed subjects for study will be the following: natural regions as a basis for Geography, human Geography, the application of the problem and project methods of study to Geography, the use of maps and pictures in Geography, practical map exercises for students, the relation of memorization and drill to thought-provoking interpretation, the socialization of the Geography lesson, and the effective use of the text-book.

To be omitted in 1921-22.

PROFESSOR ATWOOD

SS6. **THE TEACHING OF GEOGRAPHY.** Summer school, 1921. Daily except Saturday at 10.

PROFESSOR ATWOOD and MRS. THOMAS

327. **CLIMATIC ENVIRONMENT OF THE WHITE RACE.**

To be omitted in 1921-22. ASSOCIATE PROFESSOR BROOKS

328. **APPLIED METEOROLOGY.**

To be omitted in 1921-22. ASSOCIATE PROFESSOR BROOKS

329. **RESEARCH IN CLIMATOLOGY.** The world is the field of the climatologist, so there is a wide range of topics from which to select one having the strongest appeal. Under the general supervision of the instructor the student will carry on an investigation, and upon its completion present it in a form appropriate for publication. Prerequisite: Climates of the world.

Meetings to be arranged at the convenience of instructor and students. First meeting at 4 on the first Friday.

ASSOCIATE PROFESSOR BROOKS

337. SEMINAR FOR ANTHROPOGEOGRAPHY. Themes for investigation and discussion will be assigned to the seminar group as a whole each week for the first two months. Later such themes will be assigned to individuals with a special view to training in the inductive method of research.

Meetings to be arranged at the convenience of instructor and students. First meeting at 3 on the first Friday.

MISS SEMPLE

338. GEOGRAPHIC FACTORS IN THE LOCATION AND DEVELOPMENT OF CITIES.

To be omitted in 1921-22.

MISS SEMPLE

319. RESEARCH IN REGIONAL GEOGRAPHY. Properly qualified graduate students will be directed in field or laboratory investigations which should lead to the preparation of papers suitable for publication or theses to be presented in fulfillment of the requirements for graduate degrees.

Meetings to be arranged at the convenience of instructor and students. First meeting at 2 on the first Friday.

PROFESSOR ATWOOD

Additional courses may be announced before the opening of the University in the fall of 1921, and during the academic year lectures by eminent specialists may be announced on short notice.

The Summer School

The trustees of the University have announced the opening of the institution for a six weeks' summer session beginning Tuesday, July 5, and ending Friday, August 12, 1921. The opening of the Summer School is in line with the special efforts being put forth by the University, with all its resources reorganized under a new administration and united for work in a manner which has hitherto been impossible, to increase the scope of its service to New England and to the country at large.

It has been decided for this opening session to concentrate on a few subjects of wide and general interest in which the University is particularly well fitted to organize a scheme of summer school instruction. The work of the session will consequently center in the departments of Geography and History, but courses in Meteorology and Climatology will be offered in connection with the work in Geography, and in Civics in connection with the work in History. Of especial interest to teachers will be courses in Educational Psychology and elementary Education. Language instruction will be given in English and in modern foreign languages.

All the work of the Summer School will be intensive, and courses will meet five times a week. Enrollment in two courses will be considered full work for a student.

OFFICERS OF INSTRUCTION AND ADMINISTRATION

WALLACE WALTER ATWOOD, PHD. Geography

President of Clark University and Director of the
Summer School.

ELLEN CHURCHILL SEMPLE, A.M. Geography

Lecturer in Geography, Clark University.

HELEN GOSS THOMAS, A.B. Geography

Formerly Instructor in Geography, Wellesley College.

CHARLES FRANKLIN BROOKS, PH.D.

Meteorology and Climatology

Meteorologist, U. S. Weather Bureau, Washington.

PRESTON EVERETT JAMES, A.M. Geography

Formerly Assistant in Geology and Geography, Harvard
University.

GEORGE HUBBARD BLAKESLEE, PH.D.	History
Professor of History and International Relations, Clark University.	
HARRY ELMER BARNES, PH.D.	History
Professor of History, Clark University.	
GEORGE ALLEN COE, A.M.	Civics
Superintendent of Schools, Grafton and Upton.	
JAMES PERTICE PORTER, PH.D.	Psychology
Collegiate Dean and Professor of Psychology, Clark University.	
LAURA FRAZEE, B.S.	Education
Director, Bureau of School Correspondence, Junior Red Cross, Washington.	
LORING HOLMES DODD, PH.D.	English
Professor of Rhetoric, Clark University.	
JAMES METIVIER, A.B.	French
Assistant Professor of French, Clark University.	
BURT LEE DEXTER, A.B.	Spanish
Formerly Teacher in Iquique English College, Iquique, Chili.	
CHARLES BREWSTER RANDOLPH, PH.D.	German
Professor of German and Secretary of the Summer School, Clark University.	

ADMISSION

Graduates of colleges, technical schools, normal schools, or secondary schools, college students, and teachers in schools of any grade will be admitted as students upon submission of proper credentials. Other applicants will be admitted upon approval of their qualifications for the work which they desire to do.

REGISTRATION

Persons who desire to enter the Summer School should secure an application form from the Secretary at as early a date as possible and return it properly filled out. A registration fee of two dollars should be sent with the form when it is returned to the Secretary. This amount will be deducted from the tuition fee when the latter is paid.

It is exceedingly desirable that the registration of all students in all courses be completed on July 5. To this end students

should as far as possible determine before the opening of the session, through personal conference or correspondence with the Secretary or the various instructors, the courses in which they expect to register.

As stated on page 58, enrollment in two courses will be considered full work for a student. Special permission to take a third course will be granted to those who seem qualified to carry more than the usual amount of work successfully. Those who desire to register for a single course may do so.

Formal registration will begin Tuesday, July 5, at 8 a.m., in the Main Building. The opening assembly of the Summer School will be held in the Assembly Hall July 5 at 12 o'clock. All classes will meet on Wednesday, July 6.

CREDIT FOR WORK DONE

Some of the courses of instruction in the Summer School will be of graduate grade and some of college grade; many of them will be open both to graduate students and to undergraduates. The satisfactory completion of a full course will entitle the student to college credit of three semester hours, the credit given for a regular three hour course in the Undergraduate School of the University. Graduate credit will depend upon the amount and quality of the work done. Such credit may be used in fulfilling the requirements for the degrees of Master of Arts or Doctor of Philosophy in Clark University. A certificate, with a record of work done and credit awarded, will be furnished at the close of the session to all students who desire it.

It will of course be understood that credit secured for work done in the Summer School can be counted toward the degrees given in the Graduate School and Undergraduate School of the University only by students who have fulfilled the regular requirements for admission to candidacy for those degrees.

TUITION

The tuition charges are \$20 for a single course, \$30 for two, or \$40 for three. Tuition is due at the opening of the session and must be paid on or before the first Saturday of the term.

OUTSIDE ACTIVITIES

Several additional features are being planned to increase the opportunities of students and instructors not only for practical

profit from the everyday work of the lecture room, but for relaxation and enjoyment as well. Among these are an open lecture course, entertainments, and excursions to places of scientific or historic interest. The working schedule has been planned so that those who desire to take advantage of the excursions or independently to visit Boston or other neighboring cities at week-ends may do so without detriment to their regular work. This year many will wish to attend the Pilgrim Pageant at Plymouth.

OPEN LECTURES

Two courses of lectures, which will be open to all members of the Summer School without extra cost, are being arranged for Tuesday and Thursday evenings at eight o'clock. The Tuesday evening lectures will be in charge of the Department of History and International Relations of Clark University; names of speakers and titles of lectures will be announced later. The Thursday evening course will include an illustrated lecture by President Atwood, two illustrated lectures by Miss Semple, and two dramatic readings.

For persons not members of the Summer School the price of a ticket of admission to all the lectures of both courses will be five dollars; to all the lectures of either course, three dollars; to single lectures, seventy-five cents.

BOARD AND ROOMS

The University Dining Hall will be open during the session of the Summer School, and will provide table board at not more than seven dollars per week. Furnished rooms in the vicinity of the University may be secured at reasonable rates. A room for one person will probably cost from three dollars a week up, for two persons from five dollars up.

COURSES OF INSTRUCTION

Courses marked with an asterisk may be counted as a whole or in part by properly qualified students toward fulfillment of the requirement of work in residence at Clark University for the degrees of Master of Arts and Doctor of Philosophy.

GEOGRAPHY

SSI. ORIGIN AND HISTORY OF LAND FORMS. A study of Physiography. PRESIDENT ATWOOD

*SS2. REGIONAL GEOGRAPHY OF NORTH AMERICA. PRESIDENT ATWOOD

SS3. GEOGRAPHIC FACTORS IN AMERICAN HISTORY. MISS SEMPLE

*SS4. THE GEOGRAPHY OF THE MEDITERRANEAN REGION, especially in relation to Ancient History. MISS SEMPLE

SS5. THE GEOGRAPHICAL CHANGES RESULTING FROM THE WORLD WAR. MRS. THOMAS

SS6. THE TEACHING OF GEOGRAPHY. PRESIDENT ATWOOD and MRS. THOMAS

SS7. THE GEOGRAPHY OF SOUTH AMERICA. MR. JAMES

SS8. METEOROLOGY. MR. BROOKS

SS9. CLIMATES OF THE WORLD. MR. BROOKS

HISTORY

*SS1. RECENT INTERNATIONAL RELATIONS OF THE UNITED STATES. PROFESSOR BLAKESLEE

*SS2. LATIN AMERICA. PROFESSOR BLAKESLEE

*SS3. RECENT TENDENCIES IN THE TEACHING AND INTERPRETATION OF HISTORY. PROFESSOR BARNES

*SS4. THE NEWER SYNTHESIS OF MODERN HISTORY. A survey of the chief phases of the development of modern society since 1500. PROFESSOR BARNES

SS5. THE TEACHING OF COMMUNITY CIVICS. MR. COE

PSYCHOLOGY

SSI. EDUCATIONAL PSYCHOLOGY. The Psychology of Learning. PROFESSOR PORTER

*SS2. MENTAL AND EDUCATIONAL MEASUREMENTS. PROFESSOR PORTER

EDUCATION

SSI AND 2. PUPIL PARTICIPATION IN THE ACTIVITIES OF THE ELEMENTARY SCHOOL.

Course I will be a general study of the educational and social principles underlying the project method.

Course 2 will undertake to assist teachers in clarifying the special problems which they meet in their class-room leadership of children and in working toward a solution of their problems along lines of pupil participation in the school's activities.

MISS FRAZEE

ENGLISH

SS1. ADVANCED COMPOSITION. A course in the study of the shorter literary forms now popular: modern verse, the short story, and the one-act play.

PROFESSOR DODD

*SS2. BIOGRAPHY AND LETTERS. This is a course in the study of the biography, autobiography, and correspondence of noted writers.

PROFESSOR DODD

FRENCH

SS1. ELEMENTARY FRENCH. Grammar, pronunciation, and oral work.

ASSISTANT PROFESSOR METIVIER

SS2. READING OF FRENCH PROSE.

ASSISTANT PROFESSOR METIVIER

NOTE. The right is reserved of withdrawing either of the above courses if elected by less than ten students.

SPANISH

SS1. FOR BEGINNERS. Elementary work in reading and writing Spanish, accompanied by pronunciation drill and other oral exercises.

MR. DEXTER

SS2. RAPID READING COURSE. Various methods of reading will be demonstrated,—intensive, cursory, translation, reading for substance.

MR. DEXTER

NOTE. The right is reserved of withdrawing either of the above courses if elected by less than ten students.

GERMAN

SS2. GRAMMAR REVIEW AND READING OF GERMAN PROSE. This course is designed to meet the needs of students who have some knowledge of German and who wish to increase their ability to read with accuracy and ease.

PROFESSOR RANDOLPH

The Library

LOUIS N. WILSON, *Librarian*

EDITH M. BAKER, *Senior Assistant* HELEN J. ELLIOT, *Cataloguer*

ELVERETTA BLAKE, ZOE M. DEXTER, EDITH L. SAWYER, ANNA M. SWEETSER, *Assistants*

The Library under the terms of Mr. Clark's will received one quarter of his estate for the "support and maintenance of a University Library." Thus the Library is well endowed and is able to provide amply for the needs of all departments.

The Library Building is situated on the corner of Main and Downing Streets. A full description of the building and of the Proceedings at the Public Opening which was held January 14, 1904, will be found in the Publications of the Clark University Library for April 1904 (Vol. 1, No. 3).

The undergraduate library and study room occupies the lower floor of the new building, opened in September 1910, and described in the *Clark College Record*, July 1910, Vol. 5, pages 185-87.

The Library contains over 96,000 bound volumes and pamphlets, and the reading room receives over 500 journals.

The books are grouped as follows:

A	WORKS OF GENERAL REFERENCE	L	BIOGRAPHY
B	JOURNALS	M	ANTHROPOLOGY
C	MATHEMATICS	N	EDUCATION
CD	MATHEMATICS-PHYSICS	O	GENERAL SCIENCE
D	PHYSICS	P	HISTORY
DE	PHYSICAL CHEMISTRY	R	POLITICAL AND SOCIAL SCIENCE
E	CHEMISTRY		ECONOMICS
F	BIOLOGY, ZOOLOGY, BOTANY, PHYSIOLOGY, NEUROLOGY	S	ENGLISH
G	GEOGRAPHY	T	MODERN LANGUAGES
H	PATHOLOGY	U	CLASSICS
I	PSYCHOLOGY	W	PRACTICAL ARTS
J	PHILOSOPHY	X	LIBRARY SCIENCE
K	RELIGIOUS PSYCHOLOGY	Y	ART
		Z	EUROPEAN WAR

Tuesday and Friday mornings, each week, all books recently added to the Library are placed upon a table in the reference section where they remain for three days. This affords the members of the University an opportunity to examine the new books in all departments before they are placed upon the shelves for circulation.

Particular attention is paid to the needs of students engaged in research work. The Library already possesses a good collection of complete sets of the best scientific periodicals. It makes liberal purchases for individual needs and supplements these by drawing upon the resources of the older and larger libraries through the inter-library loan system. The number of books added each year is about four thousand volumes.

The books in the Art Department are accessible on application to the Librarian, but, by the terms of the Founder's will, they cannot be taken from the building.

All the privileges of the Library are open to all members of the University, and each member has direct access to every book and journal.

The Library is open from 8 a.m. to 6 p.m. each week day, except on legal holidays, from the opening of the fall term until the close of the Summer School.

ART DEPARTMENT

In his last will and testament the Founder of the University bequeathed

"the sum of \$100,000, as an endowment fund for the Art Department of said University, and said sum is to be held and kept sacred and intact as a principal not to be used or expended under any conditions; but the income, interest or proceeds thereof shall be used only in putting and keeping said works of art or others given or obtained for said department in good condition and in taking care of them; and then if there is a surplus of the income of said fund left, I will and direct that it be used in the purchase of additional works of art or of such matters as will add to the usefulness and efficiency of said Art Department."

Under these conditions a large room has been furnished and equipped on the upper floor of the Library Building. Upon the death of Mrs. Clark, those of the Founder's collections that were deemed most suitable for this purpose were arranged and displayed in this room, together with his most valuable books, which, by the conditions of the will, cannot be removed from the building. A complete catalogue of these books and paintings has been published in the Publications of the Library, Vol. 2, No. 1.

The Art Department is open daily (except Sundays and holidays) from 9 a.m. to 5 p.m.

Four portraits and one landscape painting have been added to the collection:

1909. Portrait of the late Carroll D. Wright, president of the Collegiate Department from 1902 to 1909, by the late Frederick P. Vinton of Boston. This

painting was awarded the Temple Gold Medal at the 1909 Exhibition of the Pennsylvania Academy of Fine Arts.

1911. Portrait of G. Stanley Hall, president of Clark University from 1888 to 1920, by the late Frederick P. Vinton of Boston.

1913. Landscape painting "Snowing," by Joseph H. Greenwood of Worcester.

1914. Portrait of Edmund C. Sanford, president of Clark College from 1909 to 1920, by Joseph De Camp of Boston.

1921. Portrait of Augustus George Bullock, member of the Board of Trustees since 1901 and president of the Board from 1905 to 1919, by Leslie P. Thompson of Boston.

To commemorate the twenty-fifth anniversary of the University the Board of Trustees, early in 1914, commissioned Mr. Victor D. Brenner of New York to prepare a medal to mark that event. The medal is made of bronze and is three inches in diameter. On the obverse is delineated the head of President Hall, and on the reverse a beautiful allegorical group symbolizing the spirit of the University, and the legend,

"Knowledge is proud that he has learned so much,
Wisdom is humble that he knows no more."

Scale models of the buildings and the University grounds have been made by T. J. McAuliffe and Son of Worcester, under the direction of the architects, Messrs. Frost and Chamberlain.

Departmental Announcements and Lists of Courses

DEPARTMENT OF ANCIENT LANGUAGES

PROFESSOR BRACKETT, PROFESSOR RANDOLPH

All courses in Greek and Latin are designed primarily for undergraduates. To any of these courses, however, properly qualified graduate students may be admitted by special permission. The amount of credit granted to such students will be determined in accordance with the regulations of the Graduate Board.

GREEK

Provision is made in the courses in Greek both for students who have previously studied Greek in the high school, and for those who wish to begin the subject in college. In admitting students to the College full credit is given for one, two, or three years of high school Greek. Those who have pursued successfully the study of Greek for two or three years may enter directly into course 11. Students who purpose to continue Greek in college are strongly advised to take this subject in the preparatory school for two years if possible. The department recommends that these two years be devoted first to the elements of the language, and then either exclusively or principally to the reading of Attic prose (either the *Anabasis* of Xenophon, or prose selections such as are found in Colson's *Greek Reader*). Students who have had but one year of Greek may continue the subject in college by entering Greek 14 at the beginning of the second semester. It is the belief of this department that many high schools which cannot expediently offer more than one or two years of Greek may properly and wisely offer a course of that length.

In all the work of the department an effort is made to correlate the past with the present; to make real to the student the life and civilization of Greece; and to give him an adequate apprecia-

tion of the importance which this civilization possesses as an element in our modern civilization.

For a *major* in Greek the requirement is twenty-four hours from the courses described below, of which at least eighteen must be in Greek.

The first semester of History 19 is a requirement for students electing Greek as a *major*. The *minor*, which may include History 19, may be taken in either Latin, English, German, or Romance Languages. Students who intend to teach Greek are strongly advised to take part of their *minor* in Latin.

Attention is called to the fact that some acquaintance with Greek life and thought may be gained by students who have no knowledge of the Greek language in Greek 16 (Greek Tragedy in English) and History 19 (History of Greece and Rome). Greek 16 may be taken as part of a *minor* when a student's *major* is in English, German, or Romance Languages.

The following courses will be offered in 1921-22: Greek 11, 12, 14, and 16.

LATIN

Since a substantial number of students are admitted to the college who have not previously studied Latin, the department offers to such students an opportunity to take an introductory course in this subject.

For a *major* in Latin the requirement is twenty-four hours from the courses described below, of which at least eighteen hours must be in Latin. The remaining six hours may be in Greek (except Greek 16) or in History 19. The second semester of History 19 is required of all students who take a *major* in Latin.

The following courses will be offered in 1921-22: 11, 14, 15a, 15b.

COURSES IN GREEK

I. PRIMARILY FOR UNDERGRADUATES

II. PLATO, *Apology*; HOMER, *Iliad*. In the first part of the first semester Plato's *Apology of Socrates* is read, and the work centers about the life, character, and later influence of Socrates. The remainder of the year is devoted to a study of the *Iliad*. The aim in this work is distinctly literary, and

such selections are read as will enable the student to gain as far as possible an intelligent appreciation of the poem as a whole.

Three hours, through the year.

PROFESSOR BRACKETT

12. THE GREEK DRAMA. *Æschylus, Prometheus Bound*; Sophocles, *Oedipus Tyrannus*; Euripides, *Hippolytus*. This course is designed to give a general view of Greek tragedy. Lectures or discussions deal with the staging of a Greek play, the origin and development of the drama, and the other works of the authors read. The best translations and imitations of the plays read are indicated, and may be assigned for private reading. Three or four other plays of each of these authors are read in translation and discussed in class.

Three hours, through the year.

PROFESSOR BRACKETT

Omitted in 1920-21.

13. HERODOTUS; Lyric Poetry; PLATO, *Republic*, books 1-2; THEOCRITUS. The reading of book 7 of Herodotus is followed by a study of the most important remains of the Greek elegiac, iambic, and melic poets, including Tyrtæus, Solon, Alcæus, Sappho, Archilochus, Simonides, and Anacreon. The aim of the work in Plato is by the reading of part of the *Republic* in Greek, and most of the remainder in translation, to enable the student to come into contact with the mind and spirit of Plato. About eight weeks at the end of the year are devoted to reading selections from the *Idyls* of Theocritus.

Three hours, through the year.

PROFESSOR BRACKETT

Omitted in 1920-21.

14. FIRST YEAR COURSE. The purpose of this course is to furnish to mature students who have never studied Greek an opportunity to begin this subject in college. The course not only has in view the needs of students of theology and language, but in connection with the use of Greek in scientific nomenclature should have value for students of science as well. The rate of progress is rapid. At the end of the year students should be able to read ordinary Attic prose with facility; and it is expected that students taking this course who desire to continue Greek will be able to enter the regular freshman courses.

Three hours, first semester. *Six hours*, second semester.

PROFESSOR BRACKETT

15a. NEW TESTAMENT (*Gospel of Luke*). The purpose of this course is, upon the basis of an accurate reading of the text, to make a careful objective study of the content of the narrative. Such an amount of attention is devoted to the language as is necessary for an accurate understanding of the subject matter. The work done in the course will be, it is believed, an adequate preparation for the entrance examination in this subject at most theological seminaries. The course is open only to those who have completed Greek 11, except by special permission.

Three hours, first semester.

PROFESSOR BRACKETT

Omitted in 1920-21.

16. GREEK TRAGEDY IN ENGLISH. This course deals with Greek tragedy as represented in the extant works of Aeschylus, Sophocles, and Euripides. All the reading is done in English translations, for the most part in verse. The central aim of the course is an intelligent and appreciative reading of the plays. Much attention is devoted to the connection between Greek and modern drama. The instructor will deal, in lectures, with the origin and development of Greek tragedy, the Greek theater and related subjects, and with Aristotle's theories concerning tragedy.

Three hours, through the year.

PROFESSOR BRACKETT

Omitted in 1920-21.

COURSES IN LATIN

I. PRIMARILY FOR UNDERGRADUATES

11. CICERO, *de Amicitia*; CATULLUS, Selections; HORACE, Selections from the Odes. The year is about equally divided between the three authors. Great stress is laid throughout the course on accurate and appropriate translation. In connection with the work in Horace and Catullus metrical translation is encouraged, and some of the more famous poems are committed to memory.

Three hours, through the year.

PROFESSOR RANDOLPH

Omitted in 1920-21.

12. PLAUTUS AND TERENCE. At least three plays of each of these authors are read. Ancient comedy, Greek and Latin, is discussed, and the writings of Plautus and Terence are compared.

The influence of the writers on subsequent literature is considered, and a few short papers comparing the Latin originals with modern imitations may be required.

Three hours, through the year.

PROFESSOR RANDOLPH

Omitted in 1920-21.

13. LETTERS OF CICERO AND PLINY; SELECTIONS FROM THE *Satires* AND *Epistles* OF HORACE, AND FROM JUVENAL. The greater part of the first semester is devoted to the letters of Cicero, with a study of his life, writings, and influence; during the latter part of the semester the most interesting letters of Pliny are read. In the second semester selections from Horace and Juvenal are read with particular attention to the information they contain in regard to literary and social conditions under the empire.

Three hours, through the year.

PROFESSOR RANDOLPH

Omitted in 1920-21.

14. FIRST YEAR COURSE. This course is designed to give men who have never studied Latin an opportunity to learn some of the essentials of the subject in college. It is conducted entirely with reference to the needs of the average student and with emphasis on the practical usefulness of an acquaintance with Latin in everyday life. Some time is devoted to study of the derivation of English words.

Three hours, through the year.

PROFESSOR BRACKETT

15a. SELECTIONS FROM CÆSAR, CICERO, AND OVID'S *Metamorphoses*. This course is open to students who have had Latin 14 or its equivalent. The principal aim is to increase the student's ability to read Latin.

Three hours, first semester.

PROFESSOR BRACKETT

New course, to be offered in 1921-22.

15b. VIRGIL, the *Aeneid*. In this course the controlling purpose is to enable the student, so far as possible, to understand and appreciate the *Aeneid* as literature. The poem will be considered as a whole and the parts which are not read in Latin will be read in selected verse translations.

Three hours, second semester.

PROFESSOR BRACKETT

New course, to be offered in 1921-22.

DEPARTMENT OF BIOLOGY

PROFESSOR LILLIE*, PROFESSOR FIELD†, ASSISTANT PROFESSOR RICE, MR. DAMON‡

The courses in biological subjects are designed to meet the needs of four general classes of students.

The first class consists of students who desire to take Biology as a *minor* to supplement other courses or as a general culture subject. Such students may take Biology II, 14, or III, or the required number of hours selected from the other courses with regard to the special requirements of each.

The second class includes those who wish to prepare themselves to study Medicine or Sanitary Science. Students of this class should *major* in Biology or Chemistry. A *major* in Biology requires twenty-four semester hours, which, for premedical students, should include courses II, 13, 15, and 16. The subjects pursued will then be General Biology, Vertebrate Anatomy, Embryology, Histology, and Physiology. Students preparing to take up the study of Sanitation should add to the premedical subjects course 18, which gives introductory training in Bacteriology.

The third class comprises those who intend to make Biology their profession, who wish to prepare themselves to teach the subject and to become skilled investigators. Such students are advised to select Biology as their *major* and should confer with the instructors in the department before determining their programs.

The fourth class includes those students having adequate preparation who desire to pursue research work in Biology. Opportunity is afforded for instruction, supervised experimental work, and also for independent investigation. The laboratories are equipped with the usual apparatus and materials for instruction and investigation in the biological subjects, and any additional equipment required for special purposes will be provided whenever possible. Conditions are especially favorable with regard to scientific literature. Complete files of nearly all of the important journals in Zoölogy, Physiology, and Biological Chemistry are in the library, as well as a large number of special works in these and other branches of biological science.

*Resigned Oct. 31, 1920.

†Died Feb. 14, 1921.

‡Lecturer in Bacteriology, Feb.-June 1921.

COURSES IN BIOLOGY

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL BIOLOGY. This course is designed to serve as a practical introduction to more specialized biological courses, and aims to acquaint the student with the elementary forms, forces, and laws of living nature. Types for study are selected so far as possible from common animals and plants which may be observed alive and functioning under natural conditions. Two lectures and one laboratory period per week.

Three hours, through the year. PROFESSOR FIELD, first semester
ASSISTANT PROFESSOR RICE, second semester

13. COMPARATIVE ANATOMY OF VERTEBRATES. A comparative study of the structure and development of the organs of vertebrate animals, including man, with minor reference to the lower forms. This course is designed to meet the needs of prospective students of Medicine and those who intend to specialize in Zoölogy. The laboratory work consists of the dissection and study of selected examples of vertebrate animals. Two lectures and two laboratory periods per week.

Three hours, through the year. ASSISTANT PROFESSOR RICE

14a. ELEMENTARY BOTANY. This course is offered as an elective for all students and is designed to give a general knowledge of plant life and its relation to human welfare, and also to furnish a basis for further work in Botany. Two lectures and one laboratory period per week.

Three hours, first semester. PROFESSOR FIELD

15. EMBRYOLOGY AND HISTOLOGY. The cellular structure of organisms; the origin of the individual and its development from the egg to the adult; the problems of differentiation and the cytological evidence of heredity. The laboratory work includes an introduction to histological technique and the dissection and study of the early stages of the frog, chick, and pig. Courses 11 and 13 are advised in preparation for this course. One lecture and two laboratory periods per week.

Three hours, through the year. ASSISTANT PROFESSOR RICE

16. ADVANCED PHYSIOLOGY. This course is designed to give a comprehensive knowledge of Animal Physiology. The student works out the chemical tests for food principles, digestive

ferments, urine, water, and air analyses, and determination of hæmoglobin. Considerable time is also devoted to the experimental physiology of muscle, nerve, and sense organs, and of respiration and circulation. Two lectures and one laboratory period per week.

Three hours, through the year. PROFESSOR FIELD, first semester
ASSISTANT PROFESSOR RICE, second semester

17b. **HYGIENE.** A consideration of the living machine in health and disease; parasitism and the microbes of disease, the principles of bacteriology and their application to the prevention and cure of disease; together with such topics as exercise, work, play, rest, clothing, air, water, food, poisons, etc., in relation to health; and mental hygiene. General elective. Three lectures per week.

Three hours, second semester.

Omitted in 1920-21.

18. **BACTERIOLOGY.** The principles of Bacteriology and their application in Medicine, Sanitation, and various agricultural and industrial processes. The laboratory work includes training in general bacteriological technique, the isolation and study of pure cultures, and the bacteriological examination of water, milk, and sewage. Three laboratory periods per week.

Three hours, through the year.

ASSISTANT PROFESSOR RICE, first semester
MR. DAMON, second semester

111a. **GENETICS.** Theories of organic evolution; the principles of variation, selection, and heredity; the material basis of heredity; Mendelian inheritance and the application of its principles in animal breeding and eugenics. Lectures, assigned readings, and laboratory work, including experiments in animal breeding. Courses 11 or 14a are advised in preparation for this course. Three lectures per week.

Three hours, first semester. ASSISTANT PROFESSOR RICE

To be offered in 1921-22 as Biology 111b in the second semester with two lectures and one laboratory period per week.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

No courses announced.

3. PRIMARILY FOR GRADUATE STUDENTS

312. BACTERIOLOGY SEMINAR. Preparation and discussion of assigned topics. Laboratory work on practical problems adapted to individual requirements.

Omitted in 1920-21.

313. PHYSIOLOGY SEMINAR. Designed to meet the needs of individual students having adequate preparation. Lectures, review of literature, and experimental work.

The seminar will meet *once a fortnight*.

ASSISTANT PROFESSOR RICE

New course, to be offered in 1921-22.

314. BIOLOGICAL SEMINAR. This course is designed to furnish an opportunity for advanced students in other departments to acquaint themselves with some of the more general aspects of Biology. It is proposed to vary the content of this course from year to year, and for the year 1921-22 the subject matter will be the History of Biology. Students taking Biology 313 are advised to include this course, but previous biological training will not be a prerequisite. Lectures, reading, and reports.

The seminar will meet *once a week*. ASSISTANT PROFESSOR RICE

New course, to be offered in 1921-22.

315. GENETICS. Theories of organic evolution; the principles of variation, selection, and heredity; the material basis of heredity; Mendelian inheritance and the application of its principles in animal breeding and eugenics. Lectures and assigned reading.

One lecture per week, through the year.

To be omitted in 1921-22.

ASSISTANT PROFESSOR RICE

DEPARTMENT OF CHEMISTRY

PROFESSOR MERIGOLD, PROFESSOR KRAUS, ASSOCIATE PROFESSOR WHITE*, MR. PARKER

The instruction offered in Chemistry falls into two main groups:

First, courses intended primarily for undergraduates. These are designed for those who wish to acquire the necessary foundation for professional work in Chemistry and for premedical students who wish to gain that knowledge of Chemistry which is becoming of constantly increasing importance as preparation

*Professor, 1921-.

for the best medical schools. These courses are also intended for those desiring some knowledge of the subject as part of their general education.

Second, courses intended primarily for graduates. These courses offer advanced instruction to students possessing the requisite foundation in Chemistry, Physics, and Mathematics, and afford training in the methods of chemical research. They lead ultimately to the advanced degrees.

UNDERGRADUATE WORK

Students who expect to make Chemistry a profession should *major* in Chemistry and should either take a *minor* in Physics or at least two years' work in that subject. All such students are urged to consult the members of the Department of Chemistry in planning their collegiate courses. It is not possible within the limits of a three year course leading to the A.B. degree to give sufficient Chemistry to produce a thoroughly trained professional chemist. The student who has taken all of the undergraduate work possible will have sufficient training to enable him to teach Chemistry in secondary schools and should be able to do routine analytical work as a professional chemist. All students who intend to make Chemistry a profession are urgently advised to take at least one additional year of more advanced work in Chemistry.

Students intending to study Medicine should take as much work in Chemistry as possible. Courses 11, 13, 15, and 19 or 110 are essential. Courses 14 and 18 should be included, if possible. In fact, the subject of Physical Chemistry, course 18, is even now required for admission to some of the medical schools and is almost equally essential with the courses before mentioned. Attention is called to the statement regarding premedical courses under the announcement of the Department of Biology.

The attention of all students intending to enter undergraduate courses in Chemistry is called to the matter of the laboratory fees and breakage deposits on page 20.

GRADUATE WORK

It is the purpose of the Department of Chemistry to provide the graduate student with that broad training in the fundamental principles of Chemistry which shall adequately equip him for a subsequent scientific career. A considerable number of the students entering this department for graduate work will naturally

look forward to an academic career. It is not intended, however, to provide training for such men alone, for the equipment for technical research, whether for public or private interests, requires equally a thorough familiarity with the underlying principles of science and with the methods of experimental investigation. Whether a student shall devote himself to pure or to technical research is a matter of individual interest and inclination rather than of training. The purpose of the department is to provide the training on lines sufficiently broad to enable the student to exercise a choice between technical and purely scientific work.

It is intended that the list of courses primarily for graduate students will be covered in a period of three years.

Courses 31, 33, 34, 38, and 312 are given during 1920-21.

Courses 31, 32, 33, 34, 36, 37, 311, 312, and 314 will be offered in 1921-22.

The above courses are open to graduate students who have had the requisite preliminary training, which includes Mathematics through the calculus, at least two years of work in Physics, and the standard undergraduate courses in Chemistry.

LABORATORIES AND EQUIPMENT

The Department of Chemistry occupies the north half of the Science Building, the two lower floors being devoted chiefly to the undergraduate laboratories and the upper floor to the graduate research laboratories. In addition, two rooms in the basement of the Main Building are occupied by the Department as graduate research laboratories.

The laboratories for undergraduate work occupy the two lower floors of the north wing of the Science Building. Separate laboratories are provided for work in general, analytical, organic, and physical Chemistry, in addition to rooms for furnace work, combustions, weighing, preparations, and a dark room for photochemical work. The laboratory is well equipped with all necessary apparatus for undergraduate work in Chemistry, while proximity to the graduate research laboratories renders available for undergraduate use and demonstration some forms of apparatus not ordinarily found in the smaller college laboratories.

The graduate laboratories, which are devoted exclusively to research, are exceptionally well equipped for work in organic, inorganic, and physical Chemistry.

The Department is provided with a shop which is fully equipped for carrying out any mechanical work necessary in connection with the various investigations in progress in the laboratory, and the services of a skilled mechanic are available. The Department also has a very complete equipment of various physical and physical-chemical apparatus to be used in research work, and a very complete supply of materials of all kinds.

In addition to the equipment of permanent apparatus available, the Department is always ready to purchase special apparatus or materials as required for research purposes.

The expense of the various investigations is borne by the Department, but students are held responsible for the condition of any instruments which they may use in their investigations and for the proper use of materials and other apparatus. All graduate students are required to make a deposit of twenty-five dollars with the Bursar at the beginning of the year for the purpose of guaranteeing the return of instruments and other apparatus in good condition. This money will be refunded at the end of the year, provided there are no charges against it.

ADVANCED DEGREES AND RESEARCH

The requirements for advanced degrees cannot be met by the mere pursuit of a course of studies nor by the mere execution of a research. For this reason no definite course of graduate studies is outlined, but the student is expected to carry such courses as will enable him to acquire a comprehensive knowledge of the subject of Chemistry during the course of his residence at the University. In general, the courses of instruction and the research work are designed to enable a student to complete his training in a period of three years, provided, however, that he has the necessary preliminary training prior to undertaking his graduate work and that he possesses the necessary aptitude in his chosen field of work. Students who are not fully prepared for graduate work will be required to make up any deficiencies either before undertaking graduate work or while at the same time taking a limited amount of graduate work. In such cases it is to be expected that the time necessary to obtain an advanced degree will be correspondingly extended.

All students registered for advanced degrees are expected to devote not less than thirty hours per week to laboratory work.

In the case of a student working for a Master's degree a portion of his time may be devoted to special laboratory work in organic, inorganic, and physical Chemistry. In the case of students preparing for the Doctor's degree not less than thirty hours per week or five hours per day shall be devoted to research work under such conditions and regulations as may be prescribed by the Director.

Graduate scholarships and fellowships are available for students in this department. See pages 21-23.

RESEARCH FACILITIES FOR MEN NOT CANDIDATES FOR DEGREES

The facilities of the graduate laboratories are open to such men as have the interest and the ability necessary for undertaking research on their own responsibility. Such men will, in general, already have received the Doctor's degree and will be interested primarily in research for its own sake. It is the purpose of the department to encourage men of this type whenever possible, and every facility will be afforded such investigators for the purpose of carrying out their investigations.

COURSES IN CHEMISTRY

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL CHEMISTRY, chiefly inorganic. Systematic study of the elements and their principal compounds, and the fundamental laws and theories of Chemistry. Three lectures, and six hours of laboratory work per week.

Four hours, through the year.

PROFESSOR MERIGOLD AND ASSISTANTS

12. GENERAL CHEMISTRY. This course is arranged to suit the needs of those students who have had no previous chemical training and who have no present intention of pursuing the subject farther. As broad a view as possible of Chemistry is imparted; general theoretical principles are discussed, but much attention is paid to the applications of Chemistry to daily life. Two lectures or recitations, and three hours of laboratory work per week.

Three hours, through the year.

Not given in 1920-21. To be offered in 1921-22.

13. QUALITATIVE ANALYSIS. Basic and acid. Chiefly laboratory work, nine hours per week. Occasional lectures and recitations upon the theories involved.

Three hours, through the year.

PROFESSOR WHITE AND ASSISTANTS

14. QUANTITATIVE ANALYSIS. Chiefly laboratory work, with occasional lectures, recitations, and problems. A carefully selected series of quantitative determinations, designed to give the student as wide a range as possible of typical methods of quantitative manipulation, both gravimetric and volumetric. Six hours of laboratory work, and one lecture per week. Open only to those who take or have taken course 13.

Three hours, through the year.

PROFESSOR MERIGOLD

15. ORGANIC CHEMISTRY. Systematic study of the compounds of carbon and their applications to the arts. Three lectures per week. Open to all who have taken course 11 or its equivalent.

Three hours, through the year.

PROFESSOR WHITE

16. ADVANCED QUANTITATIVE ANALYSIS (including Gas Analysis). Open only to students who have taken course 14. This course is intended to give a more comprehensive knowledge of quantitative analysis than can be obtained in an elementary course. It is primarily intended for those who expect to specialize in Chemistry, and may also be taken with advantage by those who intend to study Medicine. The laboratory work will be varied, if desired, to meet the needs of individual students. Occasional lectures treat the subject systematically from both practical and theoretical standpoints. Laboratory work, nine hours per week.

Three hours, through the year.

PROFESSOR MERIGOLD

17b*. HISTORY OF CHEMISTRY. Lectures and collateral reading covering the historical development of the science.

Three hours, second semester.

PROFESSOR MERIGOLD

18. PHYSICAL CHEMISTRY. Two lectures and three hours of laboratory a week, introducing the student to the principal chapters of modern chemical theory. To be admitted to this course, students must have passed Chemistry 11 and 14 and Physics 11. A knowledge of organic chemistry and calculus is desirable.

Three hours, through the year.

PROFESSOR MERIGOLD

*In 1921-22 there will be offered, in place of this course, Chemistry 212b, for graduates and advanced undergraduates.

19. **BIOLOGICAL CHEMISTRY.** This course is a modification of course 110, arranged for those students desiring some knowledge of the chemistry of foods, and for those intending to study Biology or Medicine. It is mainly laboratory work, consisting of a preliminary study of the general methods of organic chemistry, and further a study of proteins, carbohydrates, and fats, enzyme action, blood and urine analysis, etc. Nine hours of laboratory work a week. Open only to those who are taking or who have completed Chemistry 15. A knowledge of quantitative analysis is also desirable.

Three hours, through the year.

PROFESSOR WHITE AND ASSISTANTS

110. **ORGANIC SYNTHESIS AND ANALYSIS.** Laboratory work, consisting of the preparation of typical organic compounds, qualitative testing for the ordinary elements and organic groups, the quantitative determination of carbon, hydrogen, nitrogen, and the halogens. Course 110 should be taken, if possible, in connection with course 15. The work of this course requires nine hours of laboratory work per week. It is advisable for the student to take or to have taken course 14.

Three hours, through the year.

PROFESSOR WHITE AND ASSISTANTS

111b. **INDUSTRIAL CHEMISTRY.** The general, fundamental processes of plant operation will be described, and some of the most important manufacturing processes for the production of chemicals will be discussed in detail. Necessarily, a knowledge of the chemical principles underlying the industrial procedures will be required.

Three hours, second semester. ASSOCIATE PROFESSOR WHITE
Omitted in 1920-21. To be offered in 1921-22.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

212b. **HISTORY OF CHEMISTRY.** A course of lectures accompanied by supplementary reading. This course is intended to cover the historical development of the science in both its practical and theoretical aspects. An attempt is made to give the student some knowledge of the individuality of the men whose work has resulted in the growth and development of modern Chemistry. Attention will be given also to the relation of Chemistry to other sciences at various periods of development.

While primarily intended for advanced students, this course may be taken with the approval of the instructor by any who have taken Chemistry II, or its equivalent.

Three hours, second semester.

PROFESSOR MERIGOLD

213. ADVANCED ANALYTICAL CHEMISTRY. In this course will be considered special features of Analytical Chemistry, both practical and theoretical. The work will include such topics as special analytical methods with particular reference to sources of error, limits of accuracy, and theoretical considerations; preparation of pure inorganic materials and methods of exact analysis required in atomic weight work and fields of research necessitating precise analysis. Particular attention is paid to results of recent investigation in this field. Open only to students who take, or have taken, courses 16 and 18, or their equivalent.

Three hours, through the year.

PROFESSOR MERIGOLD

3. PRIMARILY FOR GRADUATE STUDENTS

31. THEORETICAL CHEMISTRY. The fundamental principles underlying the transformations of matter are developed and applied to systems of one component. The relations among the various coefficients are derived, and applications are made to real systems. The characteristic functions of Gibb's are introduced and illustrated, and the laws governing equilibria are derived from general principles. The conditions for equilibrium in systems under the action of external forces are derived and applied to various cases.

Lectures *twice a week*, conferences *once a week*, through the year.

PROFESSOR KRAUS

32. THEORETICAL CHEMISTRY. A continuation of the preceding course, in which systems of more than two components are treated. The conditions for equilibrium are derived. The phase rule is derived, and its application to certain particular cases is discussed. The general equations for the energy and entropy of a mixture are derived. Applications are made to dilute solutions as well as to particular cases of concentrated solutions. The conditions for equilibrium are derived for systems in which reactions take place among various constituents present. The equilibria in the case of gaseous reactions, both homogeneous and heterogeneous, are treated, and the Nernst Heat Theorem is developed and discussed.

Lectures and conferences *twice a week*, through the year.

PROFESSOR KRAUS

33. ADVANCED INORGANIC CHEMISTRY. This course consists of weekly conferences in which the various elements and their compounds are systematically treated and discussed. The treatment is so far as possible based upon theoretical considerations. Abegg and Aucherbach's *Handbuch der Anorganischen Chemie* serves as general reference work supplemented with frequent references to the literature.

Once a week, through the year.

PROFESSOR KRAUS

34. THE PHASE RULE. One component and the simpler two component systems are treated during the first year, and three component and the more complex two component systems are treated in the second year. The subject is treated as exhaustively as time permits. *Roozeboom* serves as a general text and is supplemented so far as possible by references to the original literature.

Seminar *once a week*, extending over a period of two years.

PROFESSOR KRAUS

35. THE PROPERTIES OF ELECTRICALLY CONDUCTING SYSTEMS. The properties of electrical conductors are discussed, including electrolytic solutions, fused salts, and the metals. References are made to the original literature.

Lectures and conferences *twice a week*, through the year.

PROFESSOR KRAUS

36. THE STRUCTURE OF MATTER. This course is intended to correlate our knowledge of the structure of matter from a kinetic-molecular point of view. After treating the gaseous and liquid states of matter, the solid states of matter are discussed. This includes a consideration of the structure of crystalline substances, as derived from X-ray analysis. The nature of various chemical compounds is considered. The theories of Werner, Abegg, and the more recent theories of Thomson and others are discussed. Radioactive phenomena are then briefly considered, followed by a discussion of atomic structure and the relations between the various elements from a structural point of view.

Lectures and conferences *twice a week*, through the year.

PROFESSOR KRAUS

37. **PHOTOCHEMISTRY.** The effect of light on various chemical reactions is treated in its more general aspects.

Lectures and conferences *once a week*, one half year.

MR. PARKER

38. **EQUILIBRIA IN MIXTURES OF ELECTROLYTES.** The properties of mixtures of electrolytes are discussed, and the reactions in such mixtures are considered. These include, among others, hydrolytic reactions, as well as other ionic reactions, in which new phases may or may not appear.

Lectures and conferences *once a week*, one half year.

PROFESSOR KRAUS

39. **THE PROPERTIES OF DISPERSED SYSTEMS.** The properties of dispersed systems are discussed with frequent references to the literature.

Lectures *once a week*, one half year.

MR. PARKER

310. **THE TIME FACTOR IN CHEMICAL REACTIONS.** The laws governing the rate of chemical reactions are developed, and the various factors governing the rate of reaction are considered. The effect of catalysts on the rate of reaction is considered, and the various hypotheses proposed for the action of catalytic agents are discussed.

Lectures and conferences *once a week*, through the year.

PROFESSOR KRAUS

311. **THE PROPERTIES OF SOLUTIONS IN LIQUID AMMONIA.** A study is made of the properties of solutions in liquid ammonia. This includes solutions of electrolytes, non-electrolytes, and the metals in ammonia, together with a study of the more important reactions taking place in liquid ammonia.

Lectures and conferences *once a week*, through the year.

PROFESSOR KRAUS

312. **ADVANCED ORGANIC CHEMISTRY.** Conferences are held at which the fundamental conceptions and problems of organic chemistry are dealt with in a systematic manner. Current literature, applicable to the subjects under discussion, is reviewed.

Once a week, through the year.

PROFESSOR WHITE

314. **RESEARCH CONFERENCE.** By the staff of the Department of Chemistry. The work in progress in the laboratory is discussed in detail. Reports are expected to be made by all

students engaged in research at least twice a year, and perhaps oftener.

Once a week, through the year.

DEPARTMENT OF EDUCATION AND SCHOOL HYGIENE

PROFESSOR BURNHAM, PROFESSOR SANFORD, MR. COE

The work of this department is in the closest connection with that in the Department of Psychology and largely based upon it. The aim is to give all students, both undergraduates and graduates, the opportunity for an introduction to the subject of Education as a universal culture interest; and provision for the significant aspects of Education in the school and the community. Among those who plan to become teachers it aims also to develop professional interests and to give knowledge of sound principles and methods and of the best educational literature, as a preparation for practical school work.

GRADUATE WORK

To graduate students the department gives the opportunity for research in the problems of genetic pedagogy, child hygiene, mental hygiene, and the large problems of education in relation to industry and society. The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The work in this department is intended to meet the needs of the following classes of students:

First. Those intending to teach some other specialty but who wish a general survey of the history, present state, methods, and recent advances in the field of university, professional, and technical education.

Second. Those who desire to become professors of Pedagogy, heads or instructors in normal schools, superintendents, medical inspectors, or otherwise to become experts in the work of education.

Third. Those who wish to become students of the great problems of education and hygiene in relation to industrial and social development.

Courses in Psychology are open to properly qualified students in this department, and it is expected that those who have not

had extended training in Psychology will take suitable courses in this subject.

THE DEPARTMENTAL LIBRARY

The library of the department has a large collection of educational literature, being especially rich in German and French literature and having a large number of official reports from various countries—English, French, German, Belgian, Swedish, etc.; also town and city reports, and reports of special institutions; and a collection of French, German, and American text-books.

Many of the more common educational books are accessible in the Worcester Public Library and have not been duplicated by the University. The large collection of text-books in the library of the American Antiquarian Society and its valuable historical material are also accessible to the University students.

The collection of educational periodicals includes a large number of the best foreign journals—English, French, German, Swedish, etc.

THE EDUCATIONAL MUSEUM

The nucleus of an Educational Museum has been formed. This is now merged with the museum of the Children's Institute, and contains a valuable collection of educational apparatus, pictures, illustrative material for language lessons, *Anschaunungsunterricht*, toys, kindergarten material, maps, charts, diagrams, text-books, lantern slides, photographs, and illustrative material of various kinds in School Hygiene, History, Arithmetic, Language, the Natural Sciences; apparatus for the teaching of Arithmetic, abacuses of various kinds, charts for counting, reckoning machines, number tablets, weights, measures, geometrical models; toys from different countries, a number illustrating scientific principles in Physics, and the like. The collection includes seats and desks, charts illustrating good and bad posture, hygrometers, apparatus for insuring cleanliness, for testing the air, charts illustrating the incidence of school diseases, the effects of antitoxins, etc., and a sample collection of the antitoxins for the various diseases. A catalogue of the department of School Hygiene in the museum has been published. Recent important additions to the museum include samples of the latest hygienic seats and desks made under the direction of the Posture League; and the set of over fifty charts on School Health in the United States

prepared by the Committee on School Health of the National Council of Education and the American Medical Association. Many charts, lantern slides, and books have been loaned to teachers and others. This museum has been removed to the Main Building, and after rearrangement its material will be available for use.

COURSES IN EDUCATION AND SCHOOL HYGIENE

I. PRIMARILY FOR UNDERGRADUATES

II. SECONDARY EDUCATION AND METHODS IN SECONDARY SUBJECTS. A study of the great problems of secondary education, involving consideration of such topics as the following: The dominant aims of secondary education. The contributions of genetic psychology and hygiene to the pedagogy of the high school. The adjustment of education to the characteristics of youth at the period of puberty and adolescence. Methods of training and instruction. Social and civic training. Group work. Vocational training. Physical training and athletics. The junior high school. Preparation for college and the training of secondary school teachers. A course especially adapted to those who plan to become teachers. Text-books, discussion, and prescribed reading.

Three hours, through the year.

MR. COE

See also Psychology 12b, HUMAN BEHAVIOR AND ITS MODIFICATION, page 139.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

23. PRINCIPLES OF EDUCATION. This course treats certain fundamental educational principles and involves an historical study of several important chapters in Education. Such topics as the following will be included. Educational ideals. The interrelation of educational aims. The dominant aim at different stages of development. The correlation of educational forces. The family and education. The church and education. State aid and control. The scientific method in education. Antithetic educational principles. The history of nature vs. convention in education. Individualism vs. collectivism. The manifestation and influence of these educational ideals as illustrated in England, France, and Germany before the war and tested by the war.

Rousseau, Pestalozzi, and other representatives of these principles. The present opportunity in education and the problems of educational reform and reconstruction. This course is primarily for graduates but with the consent of the instructor may be taken by undergraduates who have had a sufficient preparation in Psychology. One lecture per week.

One hour (or two hours, with prescribed reading), through the year.

PROFESSOR BURNHAM

25. THE HISTORY OF SCIENCE AND OF HIGHER EDUCATION. The purpose of this course will be the coöperative study of human progress in the acquisition of systematized knowledge and the development of means for its increase and transmission. Attention will be given to general political and social backgrounds, and correlations will be made with the parallel histories of the Medical Arts and Philosophy. The course will be handled by the seminar method and during the year 1921-22 will be devoted to the ancient and medieval periods.

One two-hour period per week, through the year.

PROFESSOR SANFORD

See also Psychology 26a, EDUCATIONAL PSYCHOLOGY, page 140.

3. PRIMARILY FOR GRADUATE STUDENTS

34. HIGHER EDUCATION IN THE UNITED STATES. After an historical survey of the influences which have molded higher education in this country, the demands of the present day upon institutions of higher learning will be analyzed and methods of meeting them considered. Especial attention will be given to the distinguishing characteristics of college and university students and the needs peculiar to their stages of development.

One lecture and one conference period per week, through the year.

Not to be offered in 1921-22.

PROFESSOR SANFORD

36. HYGIENE OF THE SCHOOL CHILD. This course has been given in alternate years with the course on the Hygiene of Instruction. Some of the more important chapters in modern school hygiene will be considered, including such topics as: The conditions that determine growth and development, physiological age, the physical and mental differences between children and adults, the general principles of somatic and mental hygiene, the hygiene of the senses, modern studies of defects of sight and

hearing, school diseases, the hygiene of the voice, the mouth, the teeth, the nose. Tests of ability to work and of physical condition. Medical inspection. The development of habits of healthful mental activity. The hygienic aspects of recent psychological studies.

Lectures *one hour per week*, through the year.

PROFESSOR BURNHAM

37. THE HYGIENE OF INSTRUCTION AND THE PRINCIPLES OF MENTAL HYGIENE. The topics considered include: The significance of stimulation in the development of the nervous system, the development of associated stimuli and conditioned reflexes. The conditions of efficient brain activity. The general principles of mental hygiene. The effects of drug stimuli, alcohol, tobacco, caffeine, and the like. Fatigue. The period of study. Recesses. The optimum conditions of school work. The hygienic aspects of examinations, discipline, and punishment. The relations of discipline to mental hygiene. The hygiene of different subjects of school instruction.

One hour per week, through the year. PROFESSOR BURNHAM

Not to be offered in 1921-22.

38. THE TEACHING PROFESSION. Teaching as trade or learned profession. The evolution of the teacher's calling. The teaching body as a social group in relation to other economic and social groups. The social function of the teacher. Salaries and social conditions. Characteristics of the teaching body as a social group. The teacher and the parent. The teacher and the artisan. The teacher in the countries of antiquity, in China, India, Greece, Rome, etc. The medieval teacher. The teachers of the early Renaissance. The great schoolmasters of the Reformation. The reformers, Comenius, F. A. Wolfe, Pestalozzi, et al. The teaching profession in Germany. Fundamental principles concerning the training of teachers. The normal schools. The hygiene of teaching.

Once a week, through the year.

PROFESSOR BURNHAM

Not to be offered in 1921-22.

39. SEMINAR. The work is determined largely by the needs of the students who take this course. It is expected that each member of the seminar will select some subject for special investigation, either in the field of Education or School Hygiene. A

coöperative method is used so that each student may profit by the work of all of the others.

One and a half or two hours per week, through the year.

PROFESSOR BURNHAM

DEPARTMENT OF ENGLISH

PROFESSOR AMES, PROFESSOR DODD

Prescribed work in English consists of English **II**, required of all freshmen, and six semester hours in English Literature, required of all students, to be completed by the end of the Junior year. English **III** is elective for all freshmen, and English **13** and **18** for freshmen who expect to make English their *major*. All courses except English **II** are elective for both juniors and seniors. A *major* in English consists of twenty-four semester hours, including English **II**; a *minor* of eighteen semester hours, including English **II**.

COURSES IN ENGLISH

I. PRIMARILY FOR UNDERGRADUATES

II. ENGLISH COMPOSITION. The aim of the course is to give the student the power of clear and forceful expression and to assist him in gaining for himself critical standards. To this end a careful study is made of the principles of prose composition, concluding with the reading of such representative essays on style as those by Newman, Spencer, Pater, and Stevenson; daily practice in the application of these principles is afforded by class exercises and by themes. Particular attention is paid to the matter of good usage, and original papers in rhetorical observation and research are required. In the second semester special consideration is given to versification, the essay, and the short story. Required of first-year students.

Three hours, through the year.

PROFESSOR DODD

13a. THE DRAMA. This is primarily a course in Shakespeare. Seven of Shakespeare's plays are studied, and dramatic readings of selected scenes are given by the students in the classroom. For collateral reading, which is required throughout the semester, the student may elect further reading in Shakespeare

or a brief course in the most important of the contemporary dramatists in English.

Three hours, first semester.

PROFESSOR AMES

To be offered in the second semester, 1921-22.

14. THE NOVEL. A reading course with critical and historical lectures. At least twenty-two specimens of this type of fiction are read in their entirety: from the Elizabethan period Lyly's *Euphues*, Sidney's *Arcadia* Book I, and Nash's *Unfortunate Traveler*; from the eighteenth century one novel each by Richardson, Fielding, Smollett, and Sterne; Johnson's *Rasselas*; in the school of domestic satire one each from Frances Burney, Jane Austen, and Maria Edgeworth, and finally one each from Gaskell (*Cranford*), Thackeray, Dickens, Anthony Trollope (*The Warden*), Hardy, Meredith, Barrie, Hawthorne, James, Howells, and Twain. The student is required also to become familiar with the best scholarly writings upon the subject and to take an examination and submit a critical paper upon each novel read.

Three hours, through the year.

PROFESSOR DODD

16b. ENGLISH COMPOSITION. A second-year course in writing, for students who have completed English 11. The first half of the course is devoted chiefly to practice in exposition. Various forms of expository writing are studied, and weekly or fortnightly themes required. The latter half of the course the student may adapt to his aptitudes and needs by electing for special practice exposition, argumentation, or narrative.

Three hours, second semester.

PROFESSOR AMES

To be offered as English 16a, in the first semester, 1921-22.

17a. PUBLIC SPEAKING AND DRAMATIC INTERPRETATION.

A course designed to give training, according to the bent of the student, either in public address or dramatic interpretation.

Three hours, first semester.

PROFESSOR DODD

Omitted in 1920-21. To be offered in 1921-22.

115a. THE BIBLE. This course aims to stimulate an intelligent appreciation of the Bible as literature. It consists of an interpretation chiefly of the Old Testament, its history and epic, poetry and oratory, philosophy and prophecy.

Three hours, first semester.

PROFESSOR AMES

This course will be offered as English 18b, in the second semester, 1921-22.

19. ENGLISH LITERATURE FROM THE REIGN OF QUEEN ANNE TO THE ACCESSION OF QUEEN VICTORIA. A general survey of the period between 1700 and 1830, with readings from Addison, Steele, Defoe, Swift, Pope, Fielding, Sterne, Johnson, Boswell, Goldsmith, Burke, Burns, Wordsworth, Coleridge, Byron, Keats, Shelley, Scott. Collateral readings in minor writers.

Three hours, through the year.

PROFESSOR AMES

New course, to be omitted in 1921-22.

110b. NINETEENTH CENTURY POETRY. A brief study of the works of Tennyson and Browning, with collateral reading in other poets of the nineteenth century and in the more notable of the contemporary poets.

Three hours, second semester.

PROFESSOR AMES

To be offered in the first semester, 1921-22.

111. AMERICAN LITERATURE. This course is designed to afford a comprehensive survey of American Literature. Most of the year is devoted to an interpretation of the prose and poetry of the nineteenth century. Besides definite prescriptions of reading, additional collateral reading is required through the course. In the latter the student may choose from a wide variety of essays, fiction, poetry, and biography, including the best work of contemporary writers. The course may be elected for the year or for the first semester only.

Three hours, through the year.

PROFESSOR AMES

112. NINETEENTH CENTURY ESSAYS. This course, while aiming to acquaint the student with the modern masters of prose, is intended primarily as an introduction to those movements of modern thought that achieve expression in the prose literature of the nineteenth century. Among the essayists read are Lamb, De Quincey, Macaulay, Carlyle, Emerson, Thoreau, Mill, Ruskin, Morris, Arnold, Newman, Pater, Huxley, Tyndall, John Fiske. Opportunity is given for appropriate collateral reading in fiction and poetry, and in contemporary essayists. The course may be elected for the year or for the first semester only.

Three hours, through the year.

PROFESSOR AMES

FINE ARTS 11. A general course in the appreciation of the arts: painting, sculpture and architecture.

Three hours, second semester.

PROFESSOR DODD

DEPARTMENT OF GEOGRAPHY

PROFESSOR ATWOOD, ASSOCIATE PROFESSOR BROOKS, MISS SEMPLE, MR. JAMES,
MRS. THOMAS

A complete statement of the aims and the scope of the courses in Geography and the related subjects, Physiography, Meteorology, and Climatology, will be found in the announcement of the Graduate School of Geography, on pages 49-57 of this catalogue.

DEPARTMENT OF GERMAN

PROFESSOR RANDOLPH

The reaction against things German when the United States entered the war resulted in a considerable restriction of the activities of this department. The present aim is to provide above all things a course of instruction which shall fit students to read standard German prose with accuracy and ease. The more formal instruction in German literature will gradually be resumed if conditions warrant it.

German 12, or French 12, or the equivalent of one of these (see the statement of the general requirement in foreign language, page 36) is required of all students.

COURSES IN GERMAN

I. PRIMARILY FOR UNDERGRADUATES

II. ELEMENTARY GERMAN. Thorough drill in pronunciation and grammar; composition; reading of easy prose.

Three hours, through the year.

12. SECOND YEAR GERMAN. Review of grammar, with composition; some drill in simple conversation; the reading of several easy pieces of modern prose. The course is a continuation of German 11.

Three hours, through the year.

13. INTERMEDIATE GERMAN. Review of grammatical and syntactical principles; composition and themes; reading of modern prose; careful drill in pronunciation; conversation. Modern fiction, essays, and magazine articles are read. Open to students who have passed German 12 or its equivalent.

Three hours, through the year. Omitted in 1920-21.

15. READINGS FROM GERMAN CLASSICS. Lessing, *Minna von Barnhelm*, *Emilia Galotti*; Schiller, *Maria Stuart*, *Wilhelm Tell*; Goethe, *Hermann und Dorothea*, *Egmont*, *Iphigenie*; the shorter poems of Schiller and Goethe. The principal critical writings of Lessing, Herder, Goethe, and Schiller are discussed by the instructor. Attention is also paid to the development of dramatic form. Parallel course to German 13, with which it might well be taken in conjunction.

Three hours, through the year.

Omitted in 1920-21.

16. SCIENTIFIC GERMAN. Especial attention is paid to the acquisition of a scientific vocabulary and to the principles governing the formation of scientific terms. Lassar-Cohn, *Die Chemie im täglichen Leben*; Greenfield, *Technical and Scientific German*. The course is designed especially for men *majoring* in science, but the subject matter includes much of interest to the casual student. Prerequisite, the first semester of German 12 or its equivalent.

Three hours, through the year.

17b. GERMAN LITERATURE OF THE FIRST HALF OF THE NINETEENTH CENTURY. The political-social history of the period as reflected in the literature of Romanticism, of the *Freiheitskrieg*, of Young Germany, the Swabian School, and Heine. Brandes, *Main Currents*, and Ziegler, *Die geistigen und sozialen Strömungen des 19. Jahrhunderts*, are taken as guides. Collateral reading in Priest's *Germany since 1740* and Francke's *History of German Literature*.

Three hours, second semester.

Omitted in 1920-21.

18. ADVANCED READING AND CONVERSATION. The course takes up through the medium of suitable German texts a variety of topics designed to acquaint the student with essential facts about Germany and the German people. About a third of each recitation hour is devoted to conversation in German. Open to men who have had at least three years of work in the language.

Three hours, through the year.

Omitted in 1920-21.

DEPARTMENT OF HISTORY AND INTERNATIONAL RELATIONS

PROFESSOR BLAKESLEE, PROFESSOR BARNES, PROFESSOR BRACKETT

UNDERGRADUATE WORK

The aim of the department in its undergraduate work is to give in its several courses a broad knowledge of the vital conditions in the growth of the leading countries of the world. This includes the study not only of the important facts, but more especially of the processes of development in government, diplomacy, society, business, religion, science, and education. The courses are not limited to a consideration of Europe and the United States, but include the progress and present-day conditions of the leading countries of South America, Asia, and Africa. While the work is designed primarily to give a cultural knowledge of general world affairs, many of the courses are of especial value to those who are preparing to teach, or to enter the field of law, theology, social service, or government.

The following courses are planned primarily for undergraduates. For a description of these, as well as additional courses open to undergraduates under restrictions, see pages 98-107.

11. MEDIEVAL HISTORY. Professor Blakeslee.

13. INTERNATIONAL RELATIONS. Professor Blakeslee.

14. THE UNITED STATES SINCE THE CIVIL WAR. Professor Barnes.

15. ENGLISH HISTORY. Professor Barnes.

16. POLITICAL HISTORY OF MODERN EUROPE. Professor Barnes.

17. INTERNATIONAL LAW. Professor Blakeslee.

19. HISTORY OF GREECE AND ROME. Professor Brackett.

Course 11, primarily for freshmen, is open to both juniors and seniors; courses 13, 16, 19 are elective for all; courses 14, 15, and 17 are designed for juniors and seniors, and may be taken by freshmen only by special permission.

PREPROFESSIONAL PROGRAMS

The following special programs are recommended to those students who enter upon their undergraduate work with the definite intention of preparing for the consular and diplomatic

service, or for teaching History in secondary schools. These programs, while permitting a considerable degree of concentration, are intended to conform to the requirements of the College for the A.B. degree.

CONSULAR AND DIPLOMATIC SERVICE

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
History 11	Pol. & Soc. Sci. 12	History 17
Pol. & Soc. Sci. 11	Pol. & Soc. Sci. 13 & 24	History 14
Modern Language	History 13	Pol. & Soc. Sci. 215
English 11	History 16	Modern Language
Elective in Science	Modern Language	Geography 234 & 244
Geography 111		Geography 235 & 264

The two following programs are typical of many which may be arranged to meet the needs of those who plan to enter high school teaching as a profession.

HISTORY AND POLITICAL SCIENCE

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
History 11	History 13	History 14
History 19	History 215	History 216
Pol. & Soc. Sci. 11	Psychology	History 17
English 11	Foreign Language	Pol. & Soc. Sci. 216
Biology	Elective in Pol. & Soc. Sci.	Pedagogy
Foreign Language	Elective in English	Geography 234 & 264

ENGLISH AND HISTORY

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
English 11	English 16	Pol. & Soc. Sci. 216
English Elective	Psychology	Pedagogy
History 11	Foreign Language	For. Lang. or Sci.
Biology	English Elective	Elective in English
Foreign Language	History 15	Elective in History
		Elective

See also courses headed Foreign Commerce, and Law, page 130.

GRADUATE WORK

The distinctive feature of the graduate work is the emphasis it places upon the various aspects of International Relations and of Social and Intellectual History. Without neglecting scholarly investigation in the economic, political, and social life of preceding centuries, it seeks to know the past primarily in order to understand the present; to learn from a study of their historical evolution how the various nations and races have developed the characteristics and culture which mark them today; to gain a sympathetic appreciation of the best in other civilizations; and to evaluate correctly the problems and the difficulties constantly arising in the inter-

national relations and diplomacy of the family of states. The field includes not only the United States and the nations of Europe, but also the newer and rapidly developing states of Asia, Latin America, and Africa. Political development is regarded as of no greater importance than economic, diplomatic, intellectual, and social advance.

INTERNATIONAL RELATIONS

In carrying out these features of its work, the department has arranged occasional conferences for the discussion of the international relations of various lands. In 1909 the sessions dealt with the Far East, including China, India, the Philippines, and Hawaii; in 1910, the Near East and Africa; in 1911, Japan and Japanese-American relations; in 1912, Recent Developments in China; in 1913, Latin America; in 1915, the Problems and Lessons of the World War; and in 1920, Mexico and the Caribbean. Altogether nearly two hundred men have taken part in these conferences—university professors, anthropologists, government officials, officers of the army and navy, travelers, missionaries, and representatives of the countries under discussion—all of whom could speak with authority. The University students are enabled not merely to read the addresses and papers, which are issued in a series of bound volumes, but to listen to and meet these men who are both writing and making present-day history.

The *Journal of International Relations* is another means for emphasizing present historical values. Published quarterly by the University, under the editorship of Professors Blakeslee and Barnes, assisted by a board of twenty-seven contributing editors, the majority of them from the faculties of other institutions, it is a forum for the discussion of the problems which relate to the international relations of states. It is of frequent service to the work of the department, for it publishes from time to time articles and theses of advanced students, which show particular excellence.

HISTORY OF THOUGHT AND CULTURE

In addition to special attention to international relations, the department aims particularly to emphasize the more progressive tendencies in historical studies. Ample provision is made for work in social and intellectual history. By combination with related courses in other departments the students will be able to secure adequate instruction in the history of science and

technology, a field now being cultivated by progressive scientists and historians alike.

FELLOWSHIP IN AMERICAN HISTORY

A Fellowship in American History, known as the American Antiquarian Society Fellowship, has been established by members of the American Antiquarian Society. It has a value of four hundred dollars in addition to remission of tuition fees.

The subject of research chosen by the Fellow for his Doctor's thesis must lie within the field of American History before 1860, the period in which the Library of the American Antiquarian Society is of greatest assistance to historical investigators. In addition to the society's valuable manuscripts of the Colonial period, it has an unequalled collection of books printed in America in the early period and of American newspapers from 1660 to 1860.

The holder of this Fellowship for 1920-21 is writing his dissertation upon "The Influence of the Loyalists upon Canadian-American Relations."

Regular University Fellowships and Scholarships are also available for students in this department.

THE DOCTORATE

The various courses offered in the department are so arranged, in cycles of two or three years, that students working for their doctorate will be enabled to secure a full program each year. Those taking History as a *major* are advised to elect their *minor* either in Geography or in Sociology. In addition to the regular courses, a feature of the method of instruction in the department is the frequent informal conferences between instructor and student.

GENERAL COURSES IN HISTORY

I. PRIMARILY FOR UNDERGRADUATES

II. MEDIEVAL HISTORY. The period covered is from the fall of Rome to the French Revolution. The course serves as a general introduction to further historical study. The aim is to give a clear and accurate picture of the life and of the great movements of the medieval and early modern period. Political details and the memorizing of names and dates are avoided so far as is

practicable, and stress laid upon social conditions, country and city life, the rise of commerce and industry, intellectual and religious development, and general medieval culture. Some of the leading topics are the Germanic invasions, feudalism, the rise of the papacy, the rise of modern nations, the crusades, and the Renaissance and Reformation. One of the objects of the course is to introduce the student to as large a number as possible of the standard writers upon the period, and to induce him to come to independent conclusions upon disputed questions. The text-book is supplemented by lectures and extended collateral readings. The course is open to all undergraduates.

Three hours, through the year.

PROFESSOR BLAKESLEE

14. THE DEVELOPMENT OF THE UNITED STATES SINCE THE CIVIL WAR. This course surveys the history of the United States since the Civil War, interpreted from the sociological point of view. After a brief review of the political and economic transformation produced by the Civil War, the course deals with: the problems of southern reconstruction; the industrial revolution; the development of the West; the reaction of big business upon American political life and the growth of the plutocracy; the development of reform tendencies in the granger and green-back movements, civil service reform, populism, free silver agitation, the Bryan democracy, the Roosevelt régime, Republican insurgency, and the progressive democracy of the first Wilson administration; radicalism and reaction during and since the World War; and, finally, the emergence of the United States as a world power, and the international problems which have arisen therefrom. Text-book, readings, and lectures. Open to juniors and seniors.

Three hours, through the year.

PROFESSOR BARNES

15. ENGLISH HISTORY. A general course in English history. Particular emphasis is laid upon the larger developments and tendencies, such as the formation of the English nation; the national organization of the feudal monarchy; the origin of representative government; the commercial revolution and the attendant political, intellectual, and religious movements; the political revolution of the seventeenth century, the triumph of parliament, and the rise of the cabinet system; the colonial and imperial problems of the eighteenth century; the industrial revolution and the

resultant development of nationalism, democracy, and imperialism. Lectures, discussions, and reports. Open to juniors and seniors.

Three hours, through the year.

PROFESSOR BARNES

Omitted in 1920-21.

16. THE POLITICAL HISTORY OF MODERN EUROPE. This course continues History 11. The main emphasis is laid upon the following topics: The development of the national monarchies; the growth of the middle class, and the English and French revolutions; restoration, reaction, and the system of Metternich; the development of constitutional government and the growth of political democracy; the completion of the national state system; the growth of national imperialism; and the political aspects of the World War and reconstruction. Text-book, readings, and lectures.

Three hours, through the year.

PROFESSOR BARNES

To be given in 1921-22. *Given 1920-21*

19. HISTORY OF GREECE AND ROME. The first semester is devoted to the history of Greece, the second to the history of Rome. The course aims to place the principal emphasis upon the characteristic elements of these civilizations and the contributions which they made to modern civilization. The course is conducted by the use of a text-book, by assigned readings, lectures, and discussions. Open to all undergraduates.

Three hours, through the year.

PROFESSOR BRACKETT

COURSES IN INTERNATIONAL RELATIONS

I. PRIMARILY FOR UNDERGRADUATES

13. INTERNATIONAL RELATIONS. The group of countries taken for especial study has varied from year to year. In 1921-22 the course will deal with Latin America and its relation to the United States. The history of each of the Latin American countries is sketched, and its general condition, political, social, and economic, described. Among the subjects emphasized are : The evolution of government in South America; the history and present interpretation of the Monroe Doctrine; commercial relations with Latin America; the effects of the opening of the Panama Canal; diplomatic controversies between the United States and Latin American countries, especially those with Colombia, Chile, and Mexico; the Mexican Revolution; and the expansion of United States

influence throughout the Caribbean. The course consists mainly of lectures, but students are expected to read extensively in assigned works, and to prepare two class theses. Open to all undergraduates.

Three hours, through the year.

PROFESSOR BLAKESLEE

17. THE ELEMENTS OF INTERNATIONAL LAW. An introductory course for qualified undergraduates. The various topics and legal principles presented are illustrated by such recent or pending international controversies as those arising from the United States claims against the Mexican government, the attempted extradition of the Kaiser, the claimed territoriality of Hudson Bay, the exemption of American coastwise shipping from Panama Canal dues, the California anti-Japanese legislation, the British black list, the seizure of the Dutch ships in 1917; and by such leading cases from the World War as those of the Appam, Frye, Wilhelmina, Dacia, Captain Fryatt, and Edith Cavell. A number of the significant and unsettled international law cases are argued by the members of the class as if before the Hague Court. The text-book is supplemented by lectures, class discussions, reports, and the study of the important cases in such collections as those by Scott, Evans, and Stowell and Munro. Open to juniors and seniors.

Three hours, through the year.

PROFESSOR BLAKESLEE

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

21. THE HISTORY OF AMERICAN DIPLOMACY. A general course treating of the international relations of the United States from its beginning as an independent nation to the present day. It traces the gradual development of American foreign policy, points out its distinctive features, and shows how it has differed from the diplomacy of other countries. A familiarity with the standard books in the field is expected, and frequent reference made to such source material as Moore's *Digest* and *Arbitrations* and the *Foreign Relations of the United States*.

Two hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1920-21.

22. THE FAR EAST. The lectures deal with Japan, its colonies, Formosa and Korea, and its foreign policy; Manchuria and Siberia, including the history and present status of the struggle

for their control; China and its recent revolutions; the Philippines and Hawaii; and the general international politics of the Far East.

Two hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1920-21.

23. **BRITISH COLONIES AND DEPENDENCIES.** A survey of the important political, economic, and social conditions in the leading British possessions, especially Canada, Australia, New Zealand, India, and Egypt; and a discussion of British colonial policy and problems.

One hour, through the year.

PROFESSOR BLAKESLEE

Omitted in 1920-21.

24. **THE EXPANSION OF EUROPE.** This course aims to indicate the importance of the contact of European culture and institutions with those of the world at large for the development of European civilization in modern times. The course is organized about a study of: The commercial revolution and the period of the discoveries; the Europeanization of America and the early contacts with the Far East; the reaction of the processes of discovery and colonization upon European life and thought; the decline of the older mercantilist imperialism; the industrial revolution and the rise of modern national imperialism; the partition of Africa and the European exploitation of Oceania and the Far East; the reaction of the contact with Africa and the Far East upon European culture and institutions. Designed to furnish a general introduction to a more intensive study of modern imperialism and international relations. Lectures, and assigned readings, based on Abbott's *Expansion of Europe*, Keller's *Colonization*, Muir's *Expansion of Europe*, and the more detailed treatises dealing with special areas and topics.

Two hours, through the year.

PROFESSOR BLAKESLEE OR PROFESSOR BARNES

Omitted in 1920-21.

3. PRIMARILY FOR GRADUATE STUDENTS

31. **INTERNATIONAL LAW.** A general course adapted for graduate students who will do a large amount of independent reading. While the course aims to give a knowledge of the general principles of international law, it presents the subject with especial

reference to the events and the outcome of the recent war, and discusses the problem of modifying the present rules of international law to meet changed world conditions. Considerable attention is also given to unsettled legal questions other than those of the war, such as those now pending between this country and Mexico. The lectures are supplemented by discussions and by a study of the leading text writers and of cases, especially those of historic importance. The United States *Rules of Land Warfare* are carefully studied. The students are expected to read widely, not only in the cases collected by Scott, Evans, and Stowell and Munro, but in Moore's *Digest* and *Arbitrations*. Open to graduates.

Three hours, through the year.

PROFESSOR BLAKESLEE

32. RECENT INTERNATIONAL RELATIONS OF THE UNITED STATES. A specialized course presenting a survey of recent events and tendencies in the foreign relations of the United States. The reversal of attitude towards other important powers, from the Civil War to the opening of the World War, will be explained: The strong friendliness for Germany changing to dislike and fear by 1913; the hostile feeling towards France gradually turning to the former traditional sympathy; the open antagonism towards Great Britain becoming a warm friendship during the Spanish War; and the paternal fondness for Japan being replaced by the growing suspicion developed since the Russo-Japanese War. Other topics will include: The expansion of the sovereignty and power of the United States both in the Caribbean and the Pacific Ocean; the increasing participation of the United States in the international politics of the Far East, and its growingly important part in world affairs since the Spanish War. The latter part of the course will deal with the diplomatic history of the United States during and since the World War.

Two hours, through the year.

PROFESSOR BLAKESLEE

33. THE EXPANSION AND THE COLONIAL POLICY OF THE UNITED STATES. The history of the successive territorial acquisitions of the United States is traced, including the diplomatic negotiations and the relations with foreign powers. This is followed by a study of the constitutional questions involved, especially those regarding the status of newly acquired possessions and of present-day dependencies; the differences between incor-

porated and unincorporated territory; and the rights and privileges of inhabitants and citizens of the various lands considered. The aims and the continuity of the American colonial policy are pointed out; and the governmental systems described for the Philippines, Hawaii, Porto Rico, Alaska, Guam, Tutuila, and the Virgin Islands.

One hour, through the year.

PROFESSOR BLAKESLEE

34. **LATIN AMERICA.** A course for graduate students, who are expected to read widely and do a large amount of independent work. A survey of the history of the various Latin American countries is followed by a consideration of international diplomacy, political problems, systems of government, race questions, and economic and industrial conditions. Emphasis is placed upon the relations, both in trade and diplomacy, between the United States and the countries of Latin America. Present problems are stressed: The Monroe Doctrine; Pan-Americanism; the Panama Canal; the treaty with Colombia; the Mexican issue; the American administration of Haiti, Santo Domingo, and the Virgin Islands; the effect of the World War upon the various Latin American republics, and their present attitude towards world organization and the League of Nations.

Three hours, through the year.

PROFESSOR BLAKESLEE

35. **THE INTERNATIONAL RELATIONS OF THE PACIFIC.** The course deals with the islands of the Pacific Ocean, especially those formerly in the possession of Germany, and emphasizes the interests of the United States. Among the topics presented are: The early period of sandalwood, beachcomber, and whaleships; American trade, exploration, and missionary activity; the general indifference of Europe to colonies during the first three quarters of the nineteenth century; the gradual rise of the colonial spirit; rivalry between Germany and the Australian commonwealths; the "scramble" for the Pacific in 1884; Germany's colonial empire; the characteristics of Germany's colonial administration; Pacific island possessions of the United States; Japan's colonial aims and policy; naval bases and strategic centers; economic and commercial values; the World War in the Pacific; the settlement at the Paris Conference; mandatories and the future.

One hour, through the year.

PROFESSOR BLAKESLEE

36. **SEMINAR.** The students in the Department of History

and International Relations meet one evening a week for the consideration of particular topics in international relations and for the review of book and magazine material of especial value. Each member is expected to present reports which then form the basis for a general discussion.

The diplomatic, political, and economic aspects of the world settlement form the chief subject for study the present year. This includes such topics as: The new evidence regarding the diplomatic origins of the World War; the reparation and economic provisions of the treaty of Versailles; the League of Nations in operation; Shantung; the reorganization of Central Europe and the Balkans; the partition of the Turkish Empire; conditions in Russia; mandates and the conflict with the imperial idea; self-determination in the British Empire, especially in Ireland, Egypt, and India; and the Philippines.

In studying these problems arising out of the war the Seminar is fortunate in having at hand the excellent war collection of the University Library, the second largest in the country, which already numbers between seven and eight thousand volumes.

PROFESSOR BLAKESLEE

RELATED COURSES IN OTHER DEPARTMENTS

PHYSIOGRAPHY [Geography 111]. Professor Atwood.

NATURAL RESOURCES AND THEIR CONSERVATION [Geography 215]. Professor Atwood.

REGIONAL GEOGRAPHY OF NORTH AMERICA [Geography 216]. Professor Atwood.

CLIMATES OF THE WORLD [Geography 226]. Associate Professor Brooks.

GENERAL PRINCIPLES OF ANTHROPOGEOGRAPHY [Geography 234]. Miss Semple.

GEOGRAPHY OF EUROPE [Geography 235]. Miss Semple.

REGIONAL GEOGRAPHY OF SOUTH AMERICA [Geography 244]. Mr. James.

ECONOMIC GEOGRAPHY OF EUROPE [Geography 264]. Assistant Professor Hilmer.

COMPARATIVE GOVERNMENT [Government 12b].

COURSES IN THE HISTORY OF THOUGHT AND CULTURE

I. PRIMARILY FOR UNDERGRADUATES

No courses announced.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

215. THE ORIGINS OF EUROPEAN CIVILIZATION. A general survey of the evolution of European society to 1500 A. D. It emphasizes the following phases of this subject: The anthropological, archæological and sociological background of history; the "pre-historic" basis of European society; the rise and culture of the empires of the near Orient; classical civilization in its economic and social aspects; north European culture before the fifth century A. D.; the amalgamation of Roman, Celtic, Christian, and barbarian elements in the medieval period; medieval agrarian and town life; and the preparation for the expansion of Europe and the development of modern civilization. Text-book, readings, and lectures. Open to qualified undergraduates and to graduates under special requirements.

Three hours, through the year.

PROFESSOR BARNES

216. THE SOCIAL HISTORY OF THE MODERN WORLD. This course continues History 215. It traces the development of European society since 1500. The discussion centers about: The expansion of Europe through the Crusades, geographical discoveries, and colonization; the commercial revolution, the development of capital, and the rise of the middle class; the resulting industrial, commercial, social, and political changes; the industrial revolution viewed as the rise of applied science and machine technology, the growth of the factory system, and the transformation of modern society; and the various programs of social reform proposed to solve the problems of modern industrial society. Text-books, readings, and lectures. Open to qualified undergraduates and to graduates under special requirements.

Three hours, through the year.

PROFESSOR BARNES

217. THE HISTORY OF THE INTELLECTUAL CLASS IN EUROPE. This course traces the changes in interests, opinions, and attitudes of mind on the part of the intellectual classes from Oriental antiquity to the present day. The following are the more important topics analyzed: The antecedents of intellectual history;

primitive reasoning; the general range of Greek speculation, its transmission to Western Europe by the Romans, and its assimilation with Christian doctrine, resulting in the Christian conception of man and the world as set forth in Augustine's *City of God*; early medieval culture; the origin of the medieval universities, the revival of Aristotle and the range of university teaching in the thirteenth century; the slow decline of Scholasticism during the fourteenth, fifteenth, and sixteenth centuries; the intellectual aspects of Humanism and the Protestant Revolt; the birth of the modern scientific spirit with Francis Bacon, Descartes, and the scientists of the sixteenth and seventeenth centuries; Deism; the French Philosophes; the industrial, social, and scientific revolutions of the nineteenth century and the resulting novel elements in contemporaneous intellectual life. Designed as a general cultural course and as the proper background for the technical and specialized courses dealing with the history of science, philosophy, and education. Lectures, based on Robinson's *Outline of the History of the Western European Mind*, and assigned readings. Open to graduate students and to specially qualified undergraduates.

Three hours, through the year.

PROFESSOR BARNES

218. THE HISTORY OF CLASSICAL SCHOLARSHIP. This course deals with the nature, development, and historical influence of Hellenic scholarship. The following are the more important topics treated: The more significant phases of Hellenic scholarship in the fields of literature, philosophy, historiography, and science; the transmission of Hellenism to Rome; the attempts of Boethius and others to adapt Hellenic learning to assimilation by medieval civilization; the vicissitudes of Hellenic thought in the early Middle Ages; the reintroduction and scientific editing of the works of Aristotle as the textual basis for Scholasticism and instruction in medieval universities; Humanism and the revival of interest in classical culture; the recovery, editing, and appropriation of classical works by the Humanists; and the influence of the classical revival upon European culture and education. The course will aim primarily to emphasize the contributions which the Greeks have made to the history of thought and culture, and to indicate the channels through which the Hellenic influences have been transmitted to the modern world. Lectures, assigned readings and papers.

Three hours, through the year.

PROFESSOR BRACKETT

3. PRIMARILY FOR GRADUATE STUDENTS

37. HISTORIOGRAPHY. A study of the methodology and literature of history as an introduction to historical research and as a preparation for the teaching of history. After a few introductory lectures on the scope, aims, methods, and interpretations of history the course attempts to arrive at a critical knowledge of the status of contemporary historiography by studying the stages and processes through which it has been attained. Lectures, and readings in Bernheim, Langlois and Seignobos, Wolf, Bury, Peter, Gairdner, Balzani, Masson, Wegele, Fueter, Gooch, Jameson, Bassett, and in the chief works of some of the leading historians from Herodotus to the present. Open to graduate students and to specially qualified undergraduates.

Two hours, through the year.

PROFESSOR BARNES

Omitted in 1920-21.

38. THE HISTORY OF THE SOCIAL SCIENCES. This course surveys the evolution of the sciences of politics, economics, and sociology in relation to the social and intellectual environment in which they have developed. Particular attention will be given to the development of methodology, to the process of differentiation from the parent body of social and ethical philosophy, and to the special influences affecting the progress of the social sciences as distinguished from natural science. Lectures and readings. Open to graduate students and to qualified undergraduates whose *major* is in social science.

Two hours, through the year.

PROFESSOR BARNES

Omitted in 1920-21.

39. THE DEVELOPMENT OF THE CONCEPT OF THE RELATION OF GEOGRAPHY TO HISTORY. The course traces the succession of theories regarding the effect of geographical environment upon social processes and the historical development of nations. It incidentally deals with the intellectual and scientific progress which is reflected in the assumptions and the data which have formed the foundation of such doctrines. The origin of this type of thought with such classical writers as Hippocrates, Aristotle, and Strabo is first surveyed. Next the doctrines of the philosophy of history from Ibn Khaldun and Bodin to Montesquieu, Herder and Buckle are considered. Then systematic anthropogeography, as represented by Ritter, Ratzel, Reclus, Brunhes, and Semple,

is analyzed. Finally, the course closes with a presentation of special interpretations of geographical influences by writers such as Metchnikoff, Demolins, Le Play, Mackinder, Dexter, and Huntington; a consideration of the various types of criticism of geographical determinism; and an estimate of the importance of anthropogeographic theory for history and the social sciences. Lectures and assigned readings.

One hour per week, through the year. PROFESSOR BARNES
New course. Not to be offered in 1921-22.

RELATED COURSES IN OTHER DEPARTMENTS

The attention of students is called to the following related courses offered in other departments:

THE HISTORY OF SCIENCE AND HIGHER EDUCATION [Education 25]. Professor Sanford.

THE HISTORY OF THE TEACHING PROFESSION [Education 38]. Professor Burnham.

GENETIC PSYCHOLOGY [Psychology 27]. Professor Sanford.

COMPARATIVE PSYCHOLOGY AND MENTAL EVOLUTION [Psychology 315]. Professor Porter.

THE HISTORY OF SOCIAL THEORIES [Sociology 218]. Professor Hankins.

THE HISTORY OF CHEMISTRY [Chemistry 17]. Professor Merigold.

THE HISTORY OF BIOLOGY [Biology 314]. Professor Rice.

HISTORY OF AMERICAN POLITICAL THEORY [Political and Social Science 214].

DEPARTMENT OF MATHEMATICS*

PROFESSOR STORY†, PROFESSOR TABER‡, PROFESSOR WEBSTER, PROFESSOR WILLIAMS,
ASSOCIATE PROFESSOR MELVILLE, ASSISTANT PROFESSOR FRENCH‡, MR. PEROTT‡

UNDERGRADUATE WORK

The undergraduate courses are designed to furnish a practical knowledge of fundamental methods of Mathematics that will be useful in the affairs of life, in business, and in the pursuit of the

*Graduate courses in Mathematics, leading to the Master of Arts degree, will be offered in 1921-22 by Professor Webster.

†To retire with rank of Professor Emeritus, at end of academic year 1920-21.

‡To retire at end of academic year 1920-21.

sciences—as well as to prepare students for more advanced work in Mathematics.

The second group of courses for graduate students and advanced undergraduates will serve as a complement to the undergraduate courses for those desiring to go farther in this department, and as a means of making up deficiencies for those who are pursuing graduate studies and who find their preparation in some respects insufficient.

A *major* in Mathematics consists of twenty-four semester hours, including courses 11, 12, and 13; a *minor* consists of eighteen semester hours, including course 11 and such other courses as may be approved by the department in which the student has elected his *major*.

GRADUATE WORK

The chief object of the graduate courses is to make independent investigators of such students as have mathematical taste and ability; these naturally look forward to careers as teachers of the higher Mathematics in colleges and universities. The plan of work is based upon the conviction that the course of training best adapted to the development of investigators is also that which is most suitable for all who would be efficient college professors, even if they are not ambitious to engage in research. The first essential of success in either of these lines is the habit of mathematical thought, and the direct object of instruction is the acquisition of this habit by each of our students. With this end in view, every student is expected to make himself familiar with the general methods and most salient results of a large number of different branches of Mathematics, conversant with the detailed results and the literature of a few branches, and thorough master of at least one special topic to the extent of making a real contribution to our knowledge of that subject.

The preparation of a bibliography of any topic is greatly facilitated by a classified index of mathematical literature on the card-catalogue plan, which has been prepared under the supervision of Professor Story and now includes over one hundred thousand titles of periodical articles, separate memoirs, and books in all fields of pure Mathematics. This index is much more complete than the Royal Society's catalogue, even in the restricted field of that catalogue (periodicals published between 1800 and 1900).

MATERIAL FACILITIES

The Library is provided with the more important text-books, treatises, and memoirs on the various branches of Mathematics, as well as the principal journals and transactions of learned societies that are devoted to any considerable extent to Mathematics.

The Department of Mathematics possesses a good collection of models, a Thomas arithmometer, and an Amsler planimeter with revolving table.

COURSES IN MATHEMATICS

I. PRIMARILY FOR UNDERGRADUATES

II. INTRODUCTORY COURSE: Elements of plane Analytic Geometry, including the straight line; plane Trigonometry; elementary theory of equations including Horner's method and De Moivre's Theorem for complex numbers; elements of determinants; and elements of differential and integral calculus. "Unified" course. Three lectures or recitations per week, with three supervised periods.

Three hours, through the year.

PROFESSOR WILLIAMS AND ASSISTANT PROFESSOR FRENCH

12. CALCULUS AND ANALYTIC GEOMETRY. Differential and integral calculus and Analytic Geometry in two and three dimensions; areas of plane and curved surfaces; quadric surfaces; lengths of curves and curvature; and volumes of solids.

Three hours, through the year. ASSISTANT PROFESSOR FRENCH
To be offered in 1921-22 as a six hour course.

13. CALCULUS AND ELEMENTARY THEORY OF DIFFERENTIAL EQUATIONS. Continuation of course 12 with applications to solutions of problems involving ordinary and partial differential equations.

Three hours, through the year.

PROFESSOR WILLIAMS

18. ELEMENTARY MATHEMATICS. A course offered primarily for students who do not intend to *major* in Mathematics but who still desire some mathematical training. The principal topics studied are Algebra, with emphasis on the solution of equations, plane Trigonometry, and coördinate Geometry. The course is designed to meet the needs of students in Physics and Chemistry

who do not take Mathematics 11, and of students in other subjects who are interested in graphical methods or statistics.

Three hours, through the year.

Omitted in 1920-21.

ASSOCIATE PROFESSOR MELVILLE

19a. ASTRONOMY. Chiefly descriptive, the object being to make the students acquainted with the main features of the heavens, celestial phenomena and laws governing them, and the most important theories that have been devised to explain them, with such mathematical deductions as will meet the needs of the class. Telescopic observations under the direction of the instructor.

Three hours, first semester.

PROFESSOR WILLIAMS

Alternates with course 110. Omitted in 1920-21.

110a. ELEMENTARY SURVEYING. Fundamental principles; field work with transit, level, sextant, compass, and chain; map making and map reading.

Three hours, first semester.

PROFESSOR WILLIAMS

Alternates with course 19. Omitted in 1920-21.

*111. INTRODUCTORY MECHANICS. A course offered primarily for first year students who expect to take Physics 11 in their second year, and intended to supplement Mathematics 11 or 18. The fundamental laws of statics and dynamics are studied. Much attention is given to the solving of problems.

Students with a liking for Mathematics who cannot take a *major* or a *minor* in that subject will find in this course a suitable elective. Open to those who have completed or are taking either course 11 or course 18.

Three hours, through the year.

ASSOCIATE PROFESSOR MELVILLE

112b. APPLIED MATHEMATICS. A course treating different topics from year to year, and intended to meet in part the needs of groups of students interested in various applications of Mathematics. According to the demand, work will be offered in elementary or advanced theory of statistics, including theory of errors, least squares, measures of correlation, graphical representation, etc.; or in the mathematical theory of investment and insurance; or in Descriptive Geometry and the elementary theory of projections as applied to map making. Open to all properly prepared students.

Three hours, second semester. ASSOCIATE PROFESSOR MELVILLE

A new course, offered for first time in 1921-22.

*Given as Physics 111 in 1920-21.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS
No courses announced.

3. PRIMARILY FOR GRADUATES *

31. CALCULUS OF OPERATIONS; symbolic methods with applications to the finite and infinitesimal calculi.

Five hours, through the year. PROFESSOR STORY

To be omitted in 1921-22.

32a. INFINITESIMAL GEOMETRY; curves on surfaces and curvature, with applications to a number of particular surfaces.

Three hours, first semester. PROFESSOR STORY

To be omitted in 1921-22.

33a. HYPERSPACE AND NON-EUCLIDEAN GEOMETRY; a detailed study of the properties of flats and quadratic loci of any number of ways, and of the possible kinds of measurement in space of any number of dimensions.

Four hours, first semester. PROFESSOR STORY

To be omitted in 1921-22.

34b. THEORY OF PROBABILITIES.

Two hours, second semester. PROFESSOR STORY

To be omitted in 1921-22.

35. THEORY OF FUNCTIONS OF REAL AND COMPLEX VARIABLES, AND ELLIPTIC FUNCTIONS.

Five hours, through the year. PROFESSOR TABER

To be omitted in 1921-22.

36. THEORY OF NUMBERS.

Two hours, through the year. M. DE PEROTT

To be omitted in 1921-22.

37. HIGHER ALGEBRA; determinants and theory of equations.

Two hours, through the year. PROFESSOR WILLIAMS

312. SEMINAR.

Through the year. PROFESSOR TABER

To be omitted in 1921-22.

See also the announcement of Professor Webster's courses in Mathematical Physics.

*Graduate courses in Mathematics, leading to the Master of Arts degree, will be offered in 1921-22 by Professor Webster.

DEPARTMENT OF PHYSICS

PROFESSOR WEBSTER, PROFESSOR GODDARD, ASSOCIATE PROFESSOR MELVILLE,
MR. IVES

The aim of this Department is to give to a student who has had a good high school course the opportunity in his undergraduate work for obtaining such knowledge of the methods and results of modern Physics without which no one may hope to be considered liberally educated, as well as to fit him in the minimum of time with professional preparation for Chemistry, Geology, Meteorology, Geography, Medicine, the teaching of Science, Engineering, or graduate work in Physics. All engineering is applied Physics and Chemistry, and especially that fundamental part of Physics known as Mechanics. At the present stage of the development of culture no man can expect to be a successful engineer who is not familiar with the leading methods of Physics, who is not well grounded in Mathematics, and who has not had some practical experience in the methods of research.

To the inculcation of the methods of research and the highest ideals in science the graduate work of the department is exclusively directed. The experiences of the war have shown that in almost every department of activity the careful and exact methods of the physicist have been of the greatest utility. Whether on the earth, in the air above the earth, or the waters under the earth, the labors of the physicist have been productive of the most wonderful results. Many engineering questions have been treated in this department, and many graduates of engineering schools have resorted hither for further training, often to become professors of Physics or Engineering or highly paid experts in engineering firms. In order to set forth to intending graduate students the facilities of this department, stress may be laid on a number of points in which it is believed that conditions here are exceptional.

First, the fact that the attention of the professor is not distracted from the needs of the student by other duties, which, combined with the small number of students in the department, enables an amount of personal attention to be given to each one which is perhaps unique in this country. The head of the department is able to see each student and to give him personal advice in the conduct of his researches or his studies every day if necessary. The facilities without which no graduate department of research

in Physics can be complete are comprised under three heads: First, a systematic course of lectures in Theoretical or Mathematical Physics; second, a laboratory with a sufficient number of rooms for individual work and with a sufficient equipment of apparatus and an instrument shop for the speedy production of whatever may be necessary for the research in hand; third, a library containing the classic works on Physics, with full sets of journals and proceedings of learned societies by which the history of progress, past and present, may be studied, and kept up-to-date by the continual purchase of the latest works. In all these directions the facilities offered by this Department invite attention. Attention is called to the fact that *no branch of Physics is left unprovided for in the courses of lectures.*

It should be urged upon intending graduate students to prepare themselves, not only in ordinary laboratory measurements, but also in Mathematics, the lack of proper mathematical preparation being a serious drawback to the appreciation of the lectures. In particular may be recommended for study not merely those portions of the calculus which deal with the working out of many indefinite integrals, etc., but the theoretical portions which deal with the ideas of partial derivatives, definite integrals, and their practical manipulation, together with enough analytic geometry to involve the properties of lines and *surfaces* of the second order, and a fair amount of the elements of determinants. As suitable text-books for preparation may be recommended to the student Lamb's, Osgood's, or Gibson's *Calculus*, C. Smith's *Analytical Geometries*, and Muir's or Hanus's *Determinants*. Appell, *Éléments de l'analyse mathématique*, or Zoretti, *Leçons de mathématiques générales*, may be very strongly recommended to the intending student for study before and during his course at the University.

It cannot be too strongly urged that the student should, from the beginning, be able to read French and German with ease.

REQUIREMENTS FOR THE DOCTOR'S DEGREE

1. The ability to read at sight specimens of scientific French and German, tested before the first of November preceding the Doctor's examination by a committee of two members of the faculty.

2. The successful passing of an examination upon the general subject of Experimental Physics* and upon the subjects named above in the regular course in Theoretical Physics, as a *major* requirement, together with an examination in one *minor* subject, *to be determined in each particular case by the head of the Department of Physics*. This subject will be Mathematics or Chemistry.

3. The presentation of a satisfactory dissertation, involving a substantial amount of original work, and forming a contribution of value to pure science. The presentation of the dissertation is a prerequisite to examination. The time of residence necessary for the proper fulfillment of the above requirements will generally be at least three years, of which at least one will be very largely devoted to work on the dissertation. Students will not be encouraged to enter upon the work of a dissertation until they have acquired sufficient experience to enable them to specialize with advantage.

The following statement is here inserted for the benefit of students of Mathematics.

The *minor* in Mathematical Physics consists of the subject-matter of courses 24, 25, 32, 36, 319a, 319b, which are intended to constitute the equivalent of five hours a week for one year.

THE LABORATORY

The Laboratory occupies three floors of one wing of a large, well-lighted building free from disturbances, and admirably adapted to the purposes of a physical laboratory. On the ground floor is a room extending across the end of the building forty-five feet long by twenty-two feet wide, with windows on three sides, above which are three similar rooms. A lift running from the bottom to the top floor affords means of transporting apparatus, while its shaft furnishes space for manometer or barometer tubes. In the lower room are four piers with heavy stone tops, and two others below the floor on which can be placed heavy tables.

Also on the ground floor is a large dark room, partially below ground, in which the temperature is tolerably constant, containing a very large and heavy pier. The engine and storage-battery room contains a kerosene engine and dynamo on the same foundation and sixty storage cells of ten amperes capacity, constituting

*Every student is recommended to provide himself with Winkelmann's *Handbuch der Physik* or Chvolson, *Traité de Physique*.

the power-supply. The engine may be started at a few moments' notice, even at night, but has been superseded for most purposes by a motor-generator which is driven by an external supply and furnishes all needed direct current. The storage cells are conveniently arranged so that each one is accessible from each side, from above and below, and the ventilation is excellent, while the room is as light and clean as the work-rooms. Distributing switchboards allow the current from the dynamo or any section of the battery to be supplied to any of the rooms. On the same floor are three rooms constituting the workshop, one of the most important parts of a research department of Physics. The first room is devoted to wood-working and pattern-making and accommodates also a bench for soldering. The next room contains the machinist's bench, two engine-lathes and drill-press, and the third room a Rivett precision bench-lathe, jeweler's lathe and Brown & Sharpe universal milling-machine. There is no countershafting in the building, each tool being driven by a separate electric motor, so that perfect quiet and steadiness are insured. In the shop are executed all repairs and alterations of apparatus, and the new apparatus requiring continual experiment is constructed. Most of the principal pieces of apparatus belonging to this department have been thus constructed. In this manner, by having a mechanic always present, an extremely great economy in time and money is effected, and vexatious delays, which would otherwise completely arrest the progress of the work, are avoided. Facilities and encouragement are given to the students to construct apparatus for themselves.

On the main floor are the lecture room, the director's office, the large room used as the director's private laboratory and apparatus room, and three other convenient rooms for research. Two of these are arranged so that they may be darkened for photography, and one is heavily padded with felt for acoustical researches. The large room on the top floor is diagonally divided into two, one dark and devoted to the Rowland twenty-foot diffraction grating and other spectroscopic apparatus, and with a photographic dark room attached. Close by is a high potential battery of two thousand small storage cells. Every room in the laboratory contains sinks, gas and electric light connections, and several circuits connecting with the switchboard in the battery-room.

The collegiate laboratory consists of six large, well-equipped rooms on the second floor of the Laboratory Building. The general laboratory is a room twenty-two by forty-five feet and has windows on three sides, there being space and apparatus sufficient to accommodate about twenty students in a division.

The lecture room has seats for fifty students, and the lecture table is equipped with direct and alternating current, gas, water, and complete projection apparatus. A special effort has been made to avoid the more elaborate "show pieces" of demonstration apparatus, and to employ chiefly such apparatus as most directly and simply illustrate phenomena.

The other rooms are a preparation room and office, a large shop and stock room, equipped for glass-blowing, besides two smaller rooms for advanced work in light and electricity.

Among the pieces of apparatus may be mentioned four Staudinger balances, a Zeiss comparator, Fuess cathetometer, Schmidt and Haensch triple field polarimeter, a large Hilger quartz spectrograph, Zeiss Pulfrich refractometer, Fuess spectrometer, Mercedes electrostatic machine, Wolff potentiometer, together with a good collection of electrical measuring instruments.

A radio station for experimental work is being installed, having two kilowatts capacity and a sending radius of a thousand miles. The aerial consists of a 110-foot mast on the roof of the Laboratory Building, supporting an antenna of the umbrella type. The Clark Radio Club has been organized, the intention being to act in close coöperation with a similar radio club at Kalamazoo College, Michigan, which institution is installing a similar outfit. The equipment at Clark University includes a radio-telephone.

The graduate laboratory is well equipped with apparatus for research besides having the facilities above described for the construction of instruments of any sort needed for that purpose. In addition may be mentioned a large collection of diagrams illustrative of mathematical Physics, many of them being originals of the figures in Professor Webster's *Electricity and Magnetism* and *Dynamics*, and a number of interesting models used in teaching dynamics, thermodynamics, and electricity. Among them are Maxwell's Dynamical Top and a number of other interesting tops, Maxwell's and Rayleigh's induction models, Gibbs's, Van der Waals's, and other thermodynamical surfaces. This collection of

drawings and models can probably not be matched in this country, and is continually being increased.

THE BALLISTIC INSTITUTE

During the year 1918, and in the desire to contribute to the work of the war, a new department of research was opened, which is a very natural application of the methods above described, and for which the facilities already existed in high degree. This was an institute of ballistic research, in which investigations of all sorts on the properties of guns and projectiles and the physical laws involved in their operation may be made. From the time that the long-range gun began to bombard Paris from a distance of seventy miles, the subject of Ballistics was taken up in the colloquium and in lectures, and the services of every member of the department were enlisted in contributing to the subject. A paper on the *Exterior Ballistics of Long-Range Guns* was presented at the meeting of the American Philosophical Society at Philadelphia in April, and at the National Academy of Sciences in the same month, and several experimental papers have been read at the meetings of the latter and of the American Physical Society. Ten papers have appeared, and others are nearly ready.

The subject of Ballistics, which may be defined as that of throwing a projectile so as to hit a previously designated target, demands a very great amount of knowledge of Theoretical Mechanics, of which Ballistics is a small part, as well as of Experimental Physics, of which Mechanics is a small part. It is thus evident that, although Ballistics, like the larger subject of Physics, is an experimental science, its application demands a large amount of pure mathematics. Professor Webster's lectures on Theoretical Dynamics and on Partial Differential Equations have furnished the necessary preparation for theoretical work.

The subject of Interior Ballistics is an application of Thermodynamics, as well as of Elasticity and of the Dynamics of Rigid Bodies, while the Ballistics of Penetration requires mathematics of a very difficult order.

The program laid down comprises the determination of short intervals of time and the measurement of velocities of projectiles both outside and inside the gun, the recording of pressures within the gun, the vibrations of guns, the question of jump and whip, the photography of the air wave accompanying the projectile,

the study of air resistance, the development of a new instrument for drawing trajectories, the applications of the gyroscope, the elastic properties of steel, and many other questions which every expert ballisticians can readily suggest. It is not intended that all work shall be confined within the walls of the laboratory, but that it shall be carried, when necessary, to the external range or proving ground. Permission has been obtained to use the State Rifle Range at Shrewsbury, and an invitation has been already received to apply the first successful practical development, that of an indicator, which does for the gun what Watt's indicator does for steam and gas engines, to a large gun at the Army Proving Ground at Aberdeen, Md. The chief authority on Ballistics in France has declared that ballisticians have been waiting for this instrument for fifty years. A further practical result is the gun-sight for anti-aircraft guns invented by Dr. Thompson, which is now in the hands of the Army, as well as the most accurate method in existence for measuring the velocity of a projectile. The last two inventions derive directly from Dr. Webster's long researches in acoustics.

To those who inquire the need for such an institute after the war, the answer may be made that the principles of Physics and Mathematics utilized in Ballistics are of equal importance in peace or war, and that any results contributed to the subject of Ballistics must inevitably help in the prosecution of all wars. The country is well awake today to the enormous advantage that has accrued to the Germans in the possession of a large number of scientific men thoroughly trained to methods of research. An examination of the literature of the war will show that in research this country is painfully behind. It is no reflection on the officers of our splendid Army and Navy to say that, however capable they may be, they have not up to the present moment been offered the theoretical training that should be considered necessary in the very difficult art of Ballistics or that is offered to French, Italian, or German officers. As a matter of fact, so far as known, there existed in the whole world but one institution of the breadth here contemplated, namely the Ballistisches Institut at Charlottenburg, Berlin, presided over by Professor Carl Cranz, whose treatise on the subject of Ballistics is classical, as his laboratory was unapproached. It has now been given up. It is with the patriotic aim of giving to this country something of the same sort, even if

very modest in size, that the present plan has been arrived at. Fortunately sufficient funds for the first year were secured, from the National Academy of Sciences, the American Academy of Sciences, the Naval Consulting Board of the United States, and from a great arms company, so that it is certain that results of value will be obtained. It is perfectly obvious that the amount of work that can be undertaken will be in proportion to the money that can be secured. This statement is made in the hope that more money will be forthcoming in order to engage more physicists, who are daily becoming a more and more scarce commodity. This year, from lack of funds, it has been necessary to seriously reduce the staff.

UNDERGRADUATE WORK

Undergraduate students whose *majors* or *minors* are in Physics or whose *majors* are in Mathematics are required to take, during the freshman year, either Mathematics 11 or 18, and Physics 111 (known as Mathematics 111 after 1920-21). Physics 111, which deals largely with the solution of practical problems in Mechanics, affords an excellent foundation for the beginning course, Physics 11. The department offers a three hour course, Physics 112, which includes laboratory work, for premedical students or others desiring a course of this nature, the prerequisite being Mathematics 11 or 18.

A *major* in Physics for undergraduates requires twenty-four semester hours. Students *majoring* in Physics should take Physics 11 the second year, Physics 14 the second semester of the second year and the first semester of the third year, Physics 16 the second semester of the third year, and one or more of the courses 12, 13, 15, and 17. Students *minoring* in Physics should take Physics 11, and 12, 13, 14, 15, 16, or 17. Students *majoring* in Chemistry should take Physics 11, 14, and 16 for their *minor*. Courses 14, 15, and 16 may be pursued for either the first or second semester alone with one half the full credit for the entire course in each case. Course 11 may be taken for the first semester alone, but the work of the second semester presupposes that of the first. All courses other than 11, 111, and 112 presuppose course 11.

As a result of the war all courses have been modified with the view of increasing their efficiency. In the undergraduate courses this has resulted chiefly in advancing some of the work to the second and third years, in order that the necessary mathematical

work shall have been completed before work in Physics is undertaken.

The courses of a strictly undergraduate nature are Physics 11, 14, 16, 17, 111, and 112. Courses 12 and 13, although of undergraduate grade, have been open to graduate students who were *majoring* in subjects other than Physics.

GRADUATE WORK

In the graduate work the courses are so arranged that a student who has had a good college course may begin in any year, and at the end of three years will have neglected no important subject, ancient or modern.

The courses for graduate students in 1921-22 will be 21, 24, 25, 39, 318, 319b, and probably 224, 225. The courses given this year have been 319a, 315, 317, 224.

In addition to these formal courses there is held a weekly colloquium, or meeting for the informal discussion of subjects not treated in the lectures, and for the presentation by the students of reports on important articles appearing in the journals. A part of the work of the colloquium consists in the systematic presentation of certain classical researches, more or less connected with the lectures, in preparing which the students make use of the original sources of information, thus gaining much acquaintance with the methods of the masters in research. The work of the colloquium has an excellent effect in training students to present their ideas in a systematic manner before an auditory.

COURSES IN PHYSICS

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL PHYSICS. This course is intended for students who wish to make a somewhat detailed elementary study of the various parts of Physics. The course lays the groundwork for those who desire to take up Engineering, Chemistry, Medicine, or the teaching of science as a profession, and is the natural starting point for those wishing to do further work in Physics. During the first semester the work covers mechanics and heat; and during the second semester, electricity and magnetism, wave motion, sound, and light. The text-book for the current year is Kimball's *College Physics*.

Open to those who have had Mathematics 11 or 18 and Physics 111 (Mathematics 111 after 1920-21). Five lectures and one laboratory period per week in the first semester, three lectures or recitations per week in the second semester.

Six hours, first semester; *three hours*, second semester.

PROFESSOR GODDARD AND ASSISTANTS

12. ELEMENTARY THEORETICAL MECHANICS. Systematic presentation of theory by lectures and recitations together with the solution of problems. Mathematics 12 must be taken before or with this course. The text-books are Horace Lamb's *Statics* and *Dynamics* and Slocomb's *Theory and Practice of Mechanics*. Divisible course.

Three hours, through the year.

Omitted in 1920-21.

13. ELEMENTARY THEORY OF ELECTRICITY AND MAGNETISM. Systematic presentation of elementary theory by lectures and recitations, together with the solution of problems, including the general principles of dynamo and motor design, and the solution of branch alternating current circuits. This course is of special importance to those intending to specialize in Physics, Mathematics, or Engineering. Mathematics 13 must be taken before or with this course. A knowledge of the more important differential equations is advised. Starling, *Electricity and Magnetism*. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

14. MECHANICAL AND ELECTRICAL MEASUREMENTS. The first half of the course consists of a series of exercises in dynamics, including kinetics of translation and rotation, elastic properties of materials, and advanced problems in heat. The second half is a systematic course in electrical measurements, with a few advanced problems in light, and constitutes the laboratory portion of the work in Physics 11. One lecture and two laboratory periods per week.

Three hours, for two semesters, beginning with the second semester of the college year.

PROFESSOR GODDARD AND ASSOCIATE PROFESSOR MELVILLE

15. THERMODYNAMICS AND OPTICS. Elementary theory of thermodynamics and optics, chiefly optics, presented by lectures and recitations, including work in practical photography. Mathematics 12 must be taken before or with this course. The respective

text-books are *Treatise on Heat*, Edser or Perkins, and a *Treatise on Light*, Houstoun. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

Omitted in 1920-21.

16b. ADVANCED PHYSICAL MEASUREMENTS. This course deals with advanced problems in physical measurements, chiefly in optics and electricity. Physics 14 is prerequisite. One lecture and two laboratory periods per week.

Three hours, second semester.

PROFESSOR GODDARD

17. ADVANCED GENERAL PHYSICS. Lectures and recitations. This course is intended for those desiring a more advanced presentation of mechanics, electricity, heat, and light than is afforded by Physics 11, yet who do not desire year courses in these special subjects. Although the treatments are less complete than in courses 12, 13, and 15, a good perspective of the subject of Physics may nevertheless be gained. Mathematics 13 must be taken before or with this course. Divisible course.

Three hours, through the year.

Omitted in 1920-21.

III. INTRODUCTORY MECHANICS. See Mathematics III, page 112.

ASSOCIATE PROFESSOR MELVILLE

112. GENERAL PHYSICS. This course is intended for pre-medical students and for others who desire a three hour course in general Physics, covering much the same ground as Physics 11, and including laboratory work. Mathematics 11 or 18 prerequisite. The text-books are Millikan's *Mechanics, Molecular Physics and Heat*, and Millikan and Mills's *Electricity, Sound and Light*. Two lectures or recitations and one laboratory period per week, together with one optional, unprepared hour of problems and discussion. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

21. DYNAMICS. THE FUNDAMENTAL PRINCIPLES OF DYNAMICS, INCLUDING THE USE OF THE PRINCIPLE OF HAMILTON AND THE EQUATIONS OF LAGRANGE. This course will be repeated yearly.

PROFESSOR WEBSTER

24. NEWTONIAN AND LOGARITHMIC POTENTIAL FUNCTIONS, ATTRACTION OF ELLIPSOIDS. This course is a necessary prelimi-

nary to the study of electricity and magnetism, of hydrodynamics, and of the figure of the earth. PROFESSOR WEBSTER

25. THEORY OF STRESS AND STRAIN, OF LINEAR VECTOR FUNCTIONS, AND ELASTICITY. PROFESSOR WEBSTER

224. INTRODUCTION TO THEORETICAL PHYSICS. This course is intended for students in Chemistry, Psychology, Economics, etc., whose mathematical training in college leaves something to be desired, and who nevertheless need to have some knowledge of the Calculus and of Mathematical Physics. The mathematical methods needed will be carefully explained in an elementary manner. PROFESSOR WEBSTER

225. THEORY AND PRACTICE OF WIRELESS TELEGRAPHY.

PROFESSOR WEBSTER AND MR. IVES

3. PRIMARILY FOR GRADUATE STUDENTS

32. DYNAMICS. GENERAL PRINCIPLES, EQUATIONS OF LAGRANGE AND HAMILTON, METHODS OF HAMILTON AND JACOBI, SYSTEMS OF PARTICLES. This course is fundamental for the pursuit of all the others, and includes a detailed account of the principle of Least Action and the differential equations of Lagrange, preparatory to their application to other parts of Mathematical Physics such as optics and electricity. PROFESSOR WEBSTER

33. MOTION OF RIGID BODIES, AND THE THEORY OF MOVING AXES. This course takes up the theory of tops and rotating bodies, including the multifarious applications of the gyroscope in engineering and war. PROFESSOR WEBSTER

36. HYDRODYNAMICS, WAVE AND VORTEX MOTION, DYNAMICAL BASIS OF SOUND AND LIGHT. These courses are the basis of applications of the theory of wave motion to sound, light, electromagnetism, and earthquake waves, and to the study of meteorology. PROFESSOR WEBSTER

37. DYNAMICS OF CYCLIC AND OSCILLATORY SYSTEMS, WITH APPLICATIONS TO THE THEORY OF ELECTRICITY, SOUND AND LIGHT. PROFESSOR WEBSTER

The substance of the preceding courses is contained in Professor Webster's *Treatise on Dynamics*, B. G. Teubner, Leipzig.

For the theory of vibrations of all kinds, see course 319c.

38. THE THEORY OF RESONANCE AND OF GENERALIZED IMPEDANCE WITH APPLICATIONS TO THE MEASUREMENT OF SOUND AND TO WIRELESS TELEGRAPHY AND TELEPHONY. The general theory of musical instruments and of acoustical engineering. This course takes up Professor Webster's original researches in acoustics, and also shows how the methods there employed bear on the fundamental electrical phenomena involved in wireless telegraphy.* It also takes up the practical questions involved in the design of auditoriums and questions of vibrations.

PROFESSOR WEBSTER

39. THE THEORY OF ELECTROSTATICS AND MAGNETOSTATICS, WITH THEIR RELATIONS TO ELASTICITY.

PROFESSOR WEBSTER

310. ELECTROMAGNETISM, THE THEORY OF THE ELECTROMAGNETIC FIELD IN THE QUASI-STATIONARY STATE, ELECTRIC WAVES. The classical theories and the theory of Maxwell. The substance of these courses is found in Professor Webster's *Mathematical Treatise on the Theory of Electricity and Magnetism*, London, Macmillan & Co.

PROFESSOR WEBSTER

311. RECENT DEVELOPMENTS IN ELECTRICAL THEORY, INCLUDING THE THEORY OF LORENTZ, THE PRINCIPLE OF RELATIVITY, AND THE EINSTEIN THEORY OF GRAVITATION. The application to the theory of electrons and to the optics of bodies in motion, with the study of differential quadratic forms.

PROFESSOR WEBSTER

312. THE THEORY OF LIGHT. Propagation of light, diffraction, reflection and refraction, dispersion, double refraction, polarization, metallic reflection, magneto-optics, X-rays and crystals.

PROFESSOR WEBSTER

313. COMPARISON OF THEORIES OF THE ETHER. Critical and historical examination of the various mechanical explanations of the luminiferous ether, including those of Green, McCullagh, Kelvin, Maxwell, Sommerfeld, and Larmor, contrasted with the modern view.

PROFESSOR WEBSTER

314. GEOMETRICAL OPTICS. Properties of systems of rays, and their various aberrations. Hamilton's characteristic function or Eikonal. Applications to optical instruments.

PROFESSOR WEBSTER

*See also Course 225.

315. THERMODYNAMICS. THERMO- AND ELECTRO-CHEMISTRY. The establishment of the two laws of thermodynamics, and their application, by means of the methods of Gibbs and Helmholtz, to the examination of physical and chemical phenomena. Application to heat-engines, including steam, gas, and oil engines, the flow of gases and vapors, and the steam turbine. The conditions of chemical equilibrium, phenomena of electrolysis, osmotic pressure, and capillarity. Nernst's Theorem.

PROFESSOR WEBSTER

316. THE KINETIC THEORY OF GASES. The Maxwell-Boltzmann Theorem and the elements of statistical mechanics.

317. THE KINETIC THEORY OF BODIES. Radiation and the modern Theory of Quanta. The relations obtained from the laws of Kirchhoff, Stefan, Wien, and Planck, by the recent applications of thermodynamics, and the deviations from classical mechanics involved in theories of quanta.

PROFESSOR WEBSTER

318. THE PHENOMENA OF CONDUCTION OF ELECTRICITY IN GASES, AND THEIR BEARING ON THE STRUCTURE OF THE ATOM.

MR. IVES

319. THE PARTIAL DIFFERENTIAL EQUATIONS OF MATHEMATICAL PHYSICS. Laplace's equation, equation of thermal and electrical conduction, equation of wave motion, Helmholtz's equation, Lorenz-Beltrami equation, telegrapher's equation, and their special cases, in one, two, or three dimensions. This course will be divided into three parts:

a. Deduction of the equations. Vector analysis. The older methods, including those of Cauchy and Fourier. Developments in series, trigonometric series, Legendre's, Laplace's, Bessel's, Lamé's functions.

b. Methods of Green and Riemann-Volterra, boundary problems.

c. Theory of vibrations and normal functions, genesis of partial differential equations and integral equations.

This complete course is probably the most important of all for the theoretical physicist, and treats a great variety of subjects from the most varied fields, grouping them all into a connected system and embracing all the methods of theoretical Physics.

The above lectures are to be found in Professor Webster's *Treatise on the Partial Differential Equations of Mathematical Phy-*

sics, which, being in press with Teubner, has been held up for seven years, but which may be expected to appear soon.

PROFESSOR WEBSTER

320. THE ELEMENTS OF INTEGRAL AND INTEGRO-DIFFERENTIAL EQUATIONS, AND THEIR APPLICATIONS TO MATHEMATICAL PHYSICS.

PROFESSOR WEBSTER

321. SELECTED CHAPTERS IN THE APPLICATION OF THEORETICAL PHYSICS TO COSMICAL PHENOMENA, INCLUDING PROBLEMS IN GEODESY, THE TIDES, METEOROLOGY, SEISMOLOGY, AND TERRESTRIAL MAGNETISM.

PROFESSOR WEBSTER

322. LINEAR DIFFERENTIAL EQUATIONS. The applications of the theory of functions to the linear differential equations of the second order which arise in mathematical Physics.

PROFESSOR WEBSTER

323. ORTHOGONAL SURFACES AND CURVILINEAR COÖRDINATES AND THEIR APPLICATIONS.

PROFESSOR WEBSTER

COURSES IN BALLISTICS

325. EXTERIOR BALLISTICS, INCLUDING HIGH ANGLE FIRING.

326. INTERIOR BALLISTICS, THEORETICAL AND PRACTICAL.

327. THEORY OF AVIATION.

328. THE APPLICATIONS OF THE GYROSCOPE, INCLUDING BALLISTICS.

DEPARTMENT OF POLITICAL AND SOCIAL SCIENCE

PROFESSOR HANKINS*, PROFESSOR BARNES, ASSISTANT PROFESSOR HILMER

UNDERGRADUATE WORK

The undergraduate courses of this department furnish introductions to Political Science, Economics, Social Economics, and Sociology. Several of them are intended primarily for the general student seeking the knowledge and training necessary for intelligent citizenship. Others are more special in character and should be pursued by those looking forward to graduate study in Social Science or to such vocations as law, business, and public service.

*Absent on leave, 1920-21.

Freshmen are admitted to courses 11, 12a, and 12b, and students making a *major* in the department are advised to take these in their first year. Freshmen are not eligible to 13 unless they have made some previous study of the subject. All other courses are open to all juniors and seniors who have had the necessary introductory work. Students with *majors* in other departments are advised, if freshmen, to select courses 11, 12a, or 12b, or, if seniors, courses 12a, 12b, 13, 210, 213, 214, 215, 216, or 217.

An undergraduate *major* in this department consists of twenty-four semester hours, which, as a rule, will include courses 11, 12a, 12b, 13, and 216. It should be noted, however, that while courses 11 and 13 are given every year courses 12a and 12b alternate with 213 and 214, and 216 with 217.

GRADUATE WORK

The courses specified below as open to graduate students indicate the scope and nature of the work offered for advanced degrees. A *major* for the A.M. and Ph.D. degrees may be taken in this department; the required *minor* may be taken in Geography, History, Psychology, or Pedagogy according to the interests of the students.

The courses in Sociology are designed primarily for those who plan to engage in teaching the subject or in some phase of sociological research or practical social work. Besides a general historical survey of social theories and a critique of certain major principles of sociological interpretation, chief attention is given to an analytical study of fundamental problems and methods of approaching them. Especial attention is given to quantitative methods of study as supplying the best training for social investigation and the most effective means for displacing opinion with fact in controverted matters.

The courses in Economics are designed to provide an historical and descriptive analysis of economic institutions, and an introduction to the leading theoretical principles which may be derived from a study of the development and nature of contemporary economic institutions.

The courses in Government aim to acquaint the student with the general principles of political organization and activity, and with the nature of the governments of the leading modern states. Particular attention is given to the government of the United

States. As far as possible, the courses are devoted to an analysis of the actual working of political institutions and the nature of political processes, rather than to a formal description of the external structure of governmental machinery.

PROFESSIONAL PROGRAMS

The following special programs are recommended to those students who enter upon their undergraduate work with the definite intention of preparing for foreign commerce, social reconstruction work, business, or law. These programs, while permitting a considerable degree of concentration, conform to the requirements of the college for the A. B. degree.

2. FOREIGN COMMERCE

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
History 11	Pol. & Soc. Sci. 12	Pol. & Soc. Sci. 27 & 28
Pol. & Soc. Sci. 11	Pol. & Soc. Sci. 13 & 24	Pol. & Soc. Sci. 210
English 11	Pol. & Soc. Sci. 25 & 26	Pol. & Soc. Sci. 222
Modern Language	History 24	History 16
Elective in Science	Modern Language	History 13
Geography 111	Geography 234 & 244	Geography 235 & 264

3. SOCIAL ECONOMICS

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
Pol. & Soc. Sci. 11	Pol. & Soc. Sci. 23 & 24	Pol. & Soc. Sci. 210
History 11	History 215	Pol. & Soc. Sci. 216
History 16	Biology	Pol. & Soc. Sci. 217
English 11	Psychology 11	Pol. & Soc. Sci. 222
Modern Language	Modern Language	Psychology
Elective in Science	Elective in English	History 216

6. BUSINESS

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
Pol. & Soc. Sci. 11	Pol. & Soc. Sci. 13 & 24	Pol. & Soc. Sci. 27 & 28
History 11 or 16	Pol. & Soc. Sci. 25 & 26	Pol. & Soc. Sci. 210
History 13	Psychology	Pol. & Soc. Sci. 222
English 11	Modern Language	Modern Language
Modern Language	Elective	Elective in Psy.
Elective in Science		Geography 264

7. LAW

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
Pol. & Soc. Sci. 11	Pol. & Soc. Sci. 12	Pol. & Soc. Sci. 215
History 11	Pol. & Soc. Sci. 13 & 24	Pol. & Soc. Sci. 216
English 11	History 15	Pol. & Soc. Sci. 224
English 17	Psychology 11	Philosophy 21 & 22
Foreign Language	Foreign Language	Foreign Language
Elective in Science		Elective in Psy.

See also course headed Consular and Diplomatic Service, page 96.

COURSES IN SOCIOLOGY

I. PRIMARILY FOR UNDERGRADUATES

11. INTRODUCTION TO SOCIAL SCIENCE. This is a general survey course designed primarily to give the student an informed basis and an intelligent attitude for further work in the department. An elementary description of social factors and institutions is followed by an intensive study of some important social questions of the day. Divisible course.

Three hours, through the year.

PROFESSOR BARNES

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

216. SOCIOLOGY. This course aims to develop a scientific as opposed to a dogmatic attitude toward social questions, to present an outline of social organization and institutions as related to social evolution, and to analyze certain leading principles of sociological interpretation. During the first semester the evolution of society and of the principal social institutions is studied. This is followed in the second semester by an analysis of the factors of social life and of the principles of sociological theory. Special papers on selected topics may be required. Divisible course.

Three hours, through the year.

PROFESSOR HANKINS

Omitted in 1920-21.

218. HISTORY OF SOCIAL THEORIES. A survey of the main contributions to sociological literature beginning with Auguste Comte. A partial list of the writers who are covered is: Comte, Quételet, Buckle, Bagehot, Spencer, Novicow, Worms, Kidd, De Greef, Gumpłowicz, Kropotkin, Oppenheimer, Small, Ratzenhofer, Ward, Giddings, Durkheim, Sumner, Boas, Ross, Cooley, and McDougall. Attention is given to the contributions of modern biology, of anthropogeography, and of the economic determinists. Each author is taken up in turn and his viewpoints and principles analyzed and discussed.

Two hours, through the year.

PROFESSOR HANKINS

Omitted in 1920-21.

220. PROBLEMS OF POPULATION. Considers various laws of population as developed by Malthus, Spencer, Nitti and others; vital statistics, birth and death rates, heredity and selection with some attention to statistical methods; theories of racial decay;

eugenics and race-regeneration; and biological and sociological conditions affecting the supply of genius. Lectures, reports, discussions.

One hour, through the year.

PROFESSOR HANKINS

Omitted in 1920-21.

221. NATURE VERSUS NURTURE. Questions of social policy frequently resolve themselves into opinions as to the relative importance of biological and environmental factors in the life of individual or group. This course begins with an analysis of the matter and methods of the works of Galton and Pearson and the contrasted works of Ward and others. There follows a survey of investigations in the mental measurements of groups and races, and such studies of social life—child mortality, poor relief, crime and delinquency, alcoholism, etc.—as may throw some light on the respective parts played by inheritance on the one hand and social custom and training on the other.

One hour, through the year.

PROFESSOR HANKINS

Omitted in 1920-21.

222. ELEMENTS OF STATISTICAL METHOD. A course designed to familiarize the student with present methods of handling quantitative data in social science with special reference to various kinds of averages, and measures of dispersion and of correlation.

Two hours, through the year.

PROFESSOR HANKINS

Omitted in 1920-21.

223. STUDIES IN SOCIAL EVOLUTION. A critical examination of the historic doctrines of social evolution. Attention is given to the chief theoretical positions of the classical evolutionary school, as represented by Tylor, Morgan and Fraser, which are contrasted with the critical doctrines of Boas and his disciples. The theories of unilateral evolution, cultural convergence, and diffusion are considered.

One hour, through the year.

PROFESSOR HANKINS

Omitted in 1920-21.

224. CRIMINOLOGY AND PENOLOGY. This course describes the progress in the method of dealing with anti-social behavior. The growth of a scientific attitude towards the nature of the criminal and the function of incarceration is discussed. Then the progress of criminal jurisprudence is analyzed and the current agitation for sociological jurisprudence is studied. The course

closes with a survey of the history of penal institutions and administration, including the more advanced programs of penal reform. The course is designed for students of social economy and those intending to enter the practice of law.

One hour per week through the year. PROFESSOR BARNES

3. PRIMARILY FOR GRADUATE STUDENTS

319. GENERAL SOCIOLOGY. A series of lectures dealing with social origins and evolution and sociological analysis. Topics treated include the origin of man, of races, and of society; primitive ideas; religion, its origin, evolution, and function; the family; tribal society; the state; philosophies of history. The analysis of social factors treats the physiographic, biological, economic, and psychological bases of society and such special processes as natural and artificial selection; communication; coöperation; competition; differentiation; socialization.

One hour, through the year. PROFESSOR HANKINS

Omitted in 1920-21.

325. SEMINAR. Given to reports on theses and selected portions of the current literature. Special attention is given to the periodical literature dealing with population questions or with some phase of sociological inquiry.

One hour, through the year. PROFESSOR HANKINS

Omitted in 1920-21.

COURSES IN ECONOMICS

I. PRIMARILY FOR UNDERGRADUATES

13. INTRODUCTION TO ECONOMICS. A general introduction to economics, including a study of the principles of value and price, money and banking, international trade, wages and labor problems, combinations and trusts, socialism, public finance and taxation. Emphasis is placed upon a critical analysis of principles.

Three hours, through the year. ASSISTANT PROFESSOR HILMER

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

24. PRINCIPLES OF ECONOMICS. A more intensive study than can be attempted in an introductory course; together with the analysis and criticism of some current theories and dogmas.

One or more hours, through the year.

ASSISTANT PROFESSOR HILMER

25a. CORPORATION FINANCE. A study of the business corporation, with a special reference to its economic significance; the different classes of securities; promotion; underwriting; bankruptcy and reorganization; financial abuses and involvements.

Three hours, first semester. ASSISTANT PROFESSOR HILMER

26b. MONOPOLY AND COMPETITION. The regulation of competition, problems of industrial combination and monopoly, public regulation and control of rates of railroads and of other public utility corporations.

Three hours, second semester.

ASSISTANT PROFESSOR HILMER

27a. MONEY AND BANKING. A discussion of the more important aspects of money and credit is followed by a study of commercial banks in the United States, Canada, and European countries. Some attention is given to financial institutions other than commercial banks.

Three hours, first semester. ASSISTANT PROFESSOR HILMER

28b. TAXATION AND PUBLIC FINANCE. Public expenditures; budgets and budgetary legislation; public revenue, including taxes, fees, special assessments; the shifting and incidence of taxation; public debts and war finance.

Three hours, second semester. ASSISTANT PROFESSOR HILMER

210b. LABOR PROBLEMS. A systematic study of the history and progress of organized labor in the United States; the aims and methods of the wage earning class; trade unionism; methods of remuneration; the settlement of industrial disputes; labor legislation.

Three hours, second semester. ASSISTANT PROFESSOR HILMER
Omitted in 1920-21.

217. SOCIAL ECONOMICS AND THEORIES OF SOCIAL REFORM. This course gives a survey of a number of the current movements for social and industrial betterment, includes a critical examination of schemes for social reconstruction, and considers the relation of social reform to social evolution. Such subjects as the following are studied: Poverty, its causes and cure; wages and standards of living; congestion of population; crime and delinquency; unemployment; child labor; women in industry; occupational diseases; workmen's compensation; old-age pensions and social insur-

ance; profit-sharing; communism; coöperation; socialism; syndicalism. Lectures and discussions. Open to all juniors and seniors. Divisible course.

Three hours, through the year.

Omitted in 1920-21.

PROFESSOR HANKINS

See also Geography 264, ECONOMIC GEOGRAPHY OF EUROPE, page 55.

COURSES IN GOVERNMENT

I. PRIMARILY FOR UNDERGRADUATES

12a. AMERICAN GOVERNMENT AND POLITICS. A study of the structure and operation of American political institutions, including a description of the activities of federal, state, and municipal government and of the organization and operation of political parties.

Three hours, first semester.

Omitted in 1920-21.

12b. GOVERNMENTS AND PARTIES IN EUROPE. A comparison of the constitutional and party systems of the leading European states, with an examination of the chief problems of a domestic nature confronting their respective governments, and the attitudes of political groups thereon.

Three hours, second semester.

Omitted in 1920-21.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

213. THE PRINCIPLES OF POLITICS. An introduction to systematic political science, consisting in an analysis of the fundamental problems involved in the origin and nature of the state, its functions, and its organization.

Three hours, first semester.

Omitted in 1920-21.

214. AMERICAN POLITICAL IDEAS. A critical study of the history of American political theories in relation to the economic and social environment in which they developed and the party organizations which espoused them. Current political conceptions are traced to their source, and contemporary tendencies in political thinking are analyzed.

Three hours, second semester.

Omitted in 1920-21.

215. THE AMERICAN CONSTITUTIONAL SYSTEM. This course is an intensive examination of the American political system of the present day. It includes a study of the formation of the federal constitution, the leading principles of constitutional interpretation, the expansion of the scope of federal activities, and the problems arising from "freedom of contract" and the "police power."

Three hours, through the year.

Omitted in 1920-21.

DEPARTMENT OF PSYCHOLOGY

PROFESSOR SANFORD*, PROFESSOR PORTER, PROFESSOR BORING, ASSISTANT
PROFESSOR FERNBERGER†, MR. PRATT‡

The Department of Psychology offers both elementary and advanced courses covering a wide range of topics. The fields covered and the instructors chiefly responsible for them are as follows:

SOCIAL AND APPLIED PSYCHOLOGY, Professor Porter.

EDUCATIONAL PSYCHOLOGY, Professor Sanford.

EXPERIMENTAL PSYCHOLOGY, Professor Boring and Mr. Pratt.

COMPARATIVE PSYCHOLOGY, Professor Porter.

SYSTEMATIC PSYCHOLOGY, Professor Boring.

GENETIC AND BEHAVIORISTIC PSYCHOLOGY, Professor Sanford.

All the facilities of the department are available to any student registered in it, according to his ability to profit by them. Undergraduates of demonstrated competence will not be refused an opportunity to participate in researches for which they are prepared, and graduate students whose preparation is anywhere defective will have opportunity in the elementary courses for making up their deficiencies without the abandonment of their advanced work. Research may be undertaken under any one of the three senior instructors.

GRADUATE WORK

Candidates for the higher degrees, Master of Arts and Doctor of Philosophy, are regarded as working under the direction of the department as a whole, and if their work is approved will be recommended for these degrees by the three senior instruc-

*Absent on leave, 1920-21.

†Resigned Jan. 1, 1921.

‡Instructor, from Jan. 1, 1921.

tors jointly. The candidate's *major*, however, will be chosen within the field of one of the three senior instructors, who will supervise the preparation of the candidate's dissertation and advise him with reference to his total plan of work. *Minors* may be selected either within or without the department, with the approval of the instructor supervising the preparation of the dissertation, but not within his field of interest.

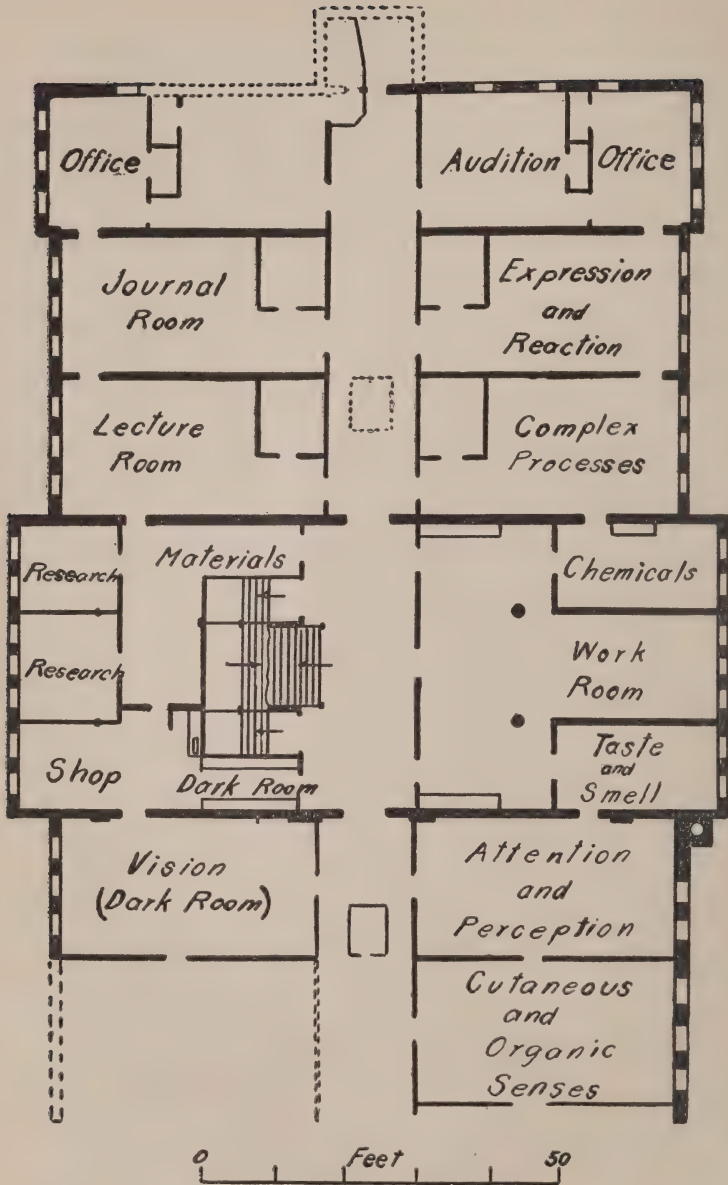
LIBRARY FACILITIES

The University Library contains an unusually large collection of psychological literature and literature in related departments, all of which is freely available to graduate students. The undergraduate Library is also ample. The Library is especially rich in scientific periodicals and the proceedings of learned societies, and maintains the files of seventy-five journals or other serials of a strictly psychological character. The Psychological Laboratories have also an independent working library of psychological books and periodicals which are shelved in the journal room.

THE PSYCHOLOGICAL LABORATORIES

The Laboratories of Experimental Psychology occupy twenty rooms on the upper floor of the Main Building of the University. These rooms, as at present arranged, are devoted to the following purposes: Lecture room, journal room with the departmental library, photographic dark room, workshop, drafting-room, offices, experimental dark room, general apparatus-room, and rooms used for research purposes and devoted to the housing of apparatus for vision, audition, taste and smell, the cutaneous and organic senses, attention and perception, and the complex mental processes. The Laboratories are well equipped with general apparatus, and have an annual appropriation sufficient to provide for the purchase and manufacture of such apparatus as may be required from time to time for special investigations. The workshop contains a power-lathe, a power-drill, and an equipment of tools and materials for the manufacture and repair of apparatus.

In addition to the Laboratories of Experimental Psychology there is an auxiliary laboratory consisting of a shop and six rooms under the direction of Professor Porter, where work in Applied Psychology and Social Psychology may be prosecuted. As a



LABORATORIES OF EXPERIMENTAL PSYCHOLOGY

matter of fact the facilities of all of the laboratories are at the disposal of any student in the department.

Provision for experimental work in Comparative Psychology, undertaken under the direction of Professor Porter, is made at the Hadwen Arboretum, about fifteen minutes walk from the Main Building of the University, where facilities for the care of animals will be provided.

COURSES IN PSYCHOLOGY

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL PSYCHOLOGY. An introductory course designed to present the facts and laws of the mental life in their larger outlines and to lead the student to a rational understanding of his own mental processes. With this end in view the problems of action and of learning will receive especial attention, though no important aspect of the normal mental life will be neglected, and no effort will be spared to make all matters treated as real and concrete as possible by demonstrations, experiments, and class discussions. Text-book, informal lectures and collateral reading.

This course forms a natural approach to all the advanced courses offered and is a definite prerequisite to all except courses 14 and 15b. Open to freshmen with the consent of the instructor.

Three hours, through the year.

PROFESSOR PORTER

To be offered in 1921-22 as Psychology 11a, first semester, by Professor Sanford.

12b. HUMAN BEHAVIOR AND ITS MODIFICATION. A course dealing with the modification of human behavior, the education of the feelings and the will, religious education, and character. Open to undergraduates who have completed course 11a or its equivalent.

Three hours, second semester.

PROFESSOR SANFORD

New course to be offered in 1921-22.

13b. INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. A course of lectures, demonstrations, class experiments, and discussions dealing with the experimental psychology of sensation, affection, attention, perception, memory, imagination, and the more complex mental processes. This course presents Psychology to the elementary student from the experimental point of view, and is designed to acquaint the student with the fundamental

facts of the human mind as they are known today from the results of scientific experiment. Open to undergraduates who have completed course 11 or its equivalent.

Three hours, second semester.

PROFESSOR BORING, MR. PRATT, AND ASSISTANT

14. SOCIAL PSYCHOLOGY. This course will be devoted first to a survey of the chief facts and methods of Psychology which are of value in the understanding of human social life. The relations of Social Psychology to Sociology, History, Education, and other branches of Psychology will be discussed. Emphasis will be given to the mental aspects of reflexes and instincts, as factors in social behavior. The results of recent investigations of habit-formation, of reasoning, and of individual differences, will be studied for their significant relations to group behavior. Some of the more important and definite facts of imitation, feeling, and emotion will be discussed for the purpose of understanding the nature and growth of conventions, customs, and modifications of these in human social life. Open to juniors and seniors.

Three hours, through the year.

PROFESSOR PORTER

15b. APPLIED PSYCHOLOGY. A series of lectures, discussions, and demonstrations devoted to the contributions which Psychology has made to the problems of human efficiency in industry, commerce, and education. A brief account will be given of the gradual change from primitive inefficient methods to present more efficient ones and of the mental factors involved. Differences in efficiency due to race, sex, and age, to training, and to such environmental conditions as ventilation, lighting, climate, fatigue, rest, and recreation will be considered. The application of psychological methods and tests in the selection and training of workers in the office and shop, and the relations of psychological technique and knowledge to the problems of social work, the law, medicine, and education will be briefly discussed. Open to undergraduates who have had course 11a or course 14.

Three hours, second semester.

PROFESSOR PORTER

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

26a. EDUCATIONAL PSYCHOLOGY. Lectures and discussions dealing with the learning process, with special reference to methods of study and the teaching of how to study. The course will consider generally such topics as attention, memory, reasoning, and

the intellectual processes. Open to graduate students, and to undergraduates who have had course 11a.

Three hours, first semester.

PROFESSOR SANFORD

Not to be offered in 1921-22.

27. GENETIC PSYCHOLOGY. An account of mental development in man. The work of the first semester will begin with a general review of the principles of genetics and will then trace the bodily and mental growth of the human individual from birth to maturity. In the second semester a review of the general principles of evolution will lay the foundation for an outline of human progress from its beginning to the attainment of the arts of civilization. Current theories with reference to the origin of language, writing, and other typical features of the body of social inheritance will be considered. One lecture and one conference period per week. At least one year's work in Psychology is important in preparation.

Two hours, through the year.

PROFESSOR SANFORD

New course. Not to be offered in 1921-22.

28a. EXPERIMENTAL PSYCHOLOGY: ELEMENTARY LABORATORY. The purpose of this course is to familiarize the student at first hand with his own mental processes and the fundamental laws of the psychophysical organism. It is designed to afford an understanding of scientific methods in observation as applied to mental material. Open to graduates, to undergraduates who have had course 13b, and by special permission to undergraduates who have had introductory courses in Psychology other than course 13b. Three laboratory periods per week.

Three hours, first semester.

PROFESSOR BORING, MR. PRATT, AND ASSISTANT

29b. EXPERIMENTAL PSYCHOLOGY: ADVANCED QUALITATIVE LABORATORY. This course is arranged to meet the needs of those students who are specializing in Psychology, and consists in a systematic presentation, by laboratory work and occasional lectures, of the method of observation in experimental Psychology. The laboratory work will be varied to suit the qualifications of individual students. Baird's *Laboratory Manual* is used as text. Open to graduates, and to undergraduates who have taken course 28a. Three laboratory periods per week.

Three hours, second semester.

MR. PRATT AND ASSISTANT

210a. **EXPERIMENTAL PSYCHOLOGY: QUANTITATIVE LABORATORY.** A course of lectures and laboratory work dealing with the methods of psychophysical measurement and with mental measurement in general. The laboratory work will be based on Titchener's *Student's Quantitative Manual*. One lecture and two laboratory periods per week. Open to graduates, and to undergraduates who have taken course 28a or its equivalent.

Three hours, first semester. MR. PRATT AND ASSISTANT

211. **EXPERIMENTAL PSYCHOLOGY: PROBLEMS.** The experimental investigation of minor psychological problems. The course is intended as an introduction to experimental research and serves as an initiation into independent work for undergraduates specializing in Psychology. The work is conducted under the immediate supervision of the staff of the laboratory, and may result in publication. Open by special permission to students whose *major* is Psychology, who should in general have had course 29b or course 210a.

Hours and credit to be arranged.

PROFESSOR BORING, MR. PRATT, AND ASSISTANT

212. **SYSTEMATIC PSYCHOLOGY: SIMPLE PROCESSES.** A course of lectures dealing with sensation, feeling, simple image, and attention. Open to graduates who have had an introductory course in Experimental Psychology, and to Seniors who have had at least course 13b or course 28a.

Three hours, through the year. PROFESSOR BORING

Not to be offered in 1921-22.

213. **SYSTEMATIC PSYCHOLOGY: COMPLEX PROCESSES.** A course of lectures dealing with perception, association, memory, imagination, action, thought, and emotion. Open to graduates who have had an introductory course in Experimental Psychology, and to seniors who have had at least course 13b or course 28a.

Three hours, through the year. PROFESSOR BORING

NOTE ON COURSES 212 and 213. These courses together constitute a systematic survey of the field of Experimental Psychology. The courses are given alternate years, so that the entire field is covered every two years. The courses presuppose a familiarity with the general content of Experimental Psychology. When the student lacks this training, he should precede the systematic courses by courses 13a and 28b. Students, both graduate and

undergraduate, should confer with Professor Boring concerning their preparation before undertaking these courses.

214. SEMINAR IN MENTAL MEASUREMENT. A coöperative study of the most promising intelligence tests and other methods of mental measurement. Members will report frequently on results of investigations already made by others or on problems worked out by themselves. For graduates and qualified undergraduates.

One afternoon or evening, through the year.

PROFESSOR PORTER

New course. To be offered in 1921-22.

3. PRIMARILY FOR GRADUATE STUDENTS

315. COMPARATIVE PSYCHOLOGY AND MENTAL EVOLUTION. This course will attempt to set forth the gradual development of the scientific study of mind in animals, the main facts and laws of tropisms, reflexes, instincts, habit-formation, and other mental processes in animals. Wherever possible the correlation of the structures of the nervous system and mental processes will be considered. A careful account will be given of the comparative methods of experimentation and interpretation applied to animal and human learning and behavior. Animal and human mental evolution will be compared and contrasted to show the rôle of the "trial and success" method and how this has been modified in civilized man.

One hour per week, through the year.

PROFESSOR PORTER

316. ADVANCED SOCIAL AND APPLIED PSYCHOLOGY. This course will consist of lectures and discussions of the chief mental processes constituting the elements of human social life. The theories of the leading social psychologists will be critically considered in the light of recent related psychological investigations. Emphasis will be given to the changes produced in the behavior of an individual when he is a member of a group. As applied Psychology the following subjects will be treated: the human factor in industry and business, the recently developed methods of personnel selection and rating, the psychology of employment, the psychological aspects of mental deficiency and moral delinquency, and the favorable and unfavorable external conditions of efficiency.

One hour per week, through the year. PROFESSOR PORTER
Not to be offered in 1921-22.

317. BEHAVIORISM, PSYCHOBIOLOGY AND FREUDIANISM. An expository and critical consideration of human behavior and the conditions that determine it. The course will of necessity traverse some portions of the fields of genetic psychology and psychiatry, and will make some demand upon the biological knowledge of those who follow it. At least one year's previous work in Psychology is an essential preliminary.

One lecture and one conference period per week, through the year.

PROFESSOR SANFORD

New course. To be offered in 1921-22.

318. PSYCHOLOGICAL TECHNIQUE. A course for graduate students to acquaint them with the technique of the more complicated apparatus used in psychological experimentation and with information and procedures required by psychological investigators. The course is intended solely for students who expect to make psychological research their profession.

One laboratory period per week, through the year. *

Not to be offered in 1921-22.

PROFESSOR BORING

319. SEMINAR IN EXPERIMENTAL PSYCHOLOGY. The systematic development of some topic in Experimental Psychology. Open to graduate students *by invitation only*.

One evening per week, through the year. PROFESSOR BORING

320. RESEARCH.

PROFESSOR SANFORD, PROFESSOR PORTER, PROFESSOR BORING

COURSES IN PHILOSOPHY

I. PRIMARILY FOR UNDERGRADUATES

No courses announced.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

21. HISTORY OF PHILOSOPHY. A discussion of Western Philosophy from Thales to Schopenhauer.

Two hours, through the year.

MR. KARLSON

Not to be offered in 1921-22.

22. CONTEMPORARY PHILOSOPHY. A discussion of Philosophy since Schopenhauer, dealing chiefly with the naturalistic, the

idealistic, the pragmatic, and the realistic tendencies in present-day philosophy.

One hour, through the year.

MR. KARLSON

Not to be offered in 1921-22.

DEPARTMENT OF ROMANCE LANGUAGES

PROFESSOR CHURCHMAN, ASSISTANT PROFESSOR METIVIER

French 12, or German 12, or the equivalent of one of these (see the statement of the general requirement in foreign language, page 36), is required of all candidates for the A.B. degree.

As now organized, the courses in this department are planned with the following ends in view: French 11 and 12 are the basic language courses, in which it is the purpose to develop a reading ability with at least a beginning of writing and speaking; when possible a student should take the full twelve hours of this sort of work. To the student who has completed 12, courses 13 and 14 offer an option between a continuance of general language work and a course limited to translation and literature; both may of course be taken. Those who have completed 13 or 14 may take 25 and 26—courses in which the literature of two important centuries is studied intensively. Prospective teachers will take course 27, either conjointly with 13, or after completing that course. The other courses are self-explanatory.

Courses 25, 26, 27a, and 27b may be taken for credit by graduates and undergraduates. All the others are primarily for undergraduates.

A *major* in Romance Languages consists of at least twenty-four semester hours selected from the courses described below; but not more than twelve semester hours in elementary courses (French 11, Italian 11, and Spanish 11) may be counted in a *major*. The attention of students intending to *major* in Romance Languages is called to the statement concerning the required courses in Greek or Latin, on page 36.

When conditions warrant, this department is prepared to offer the following additional three-hour courses or others of a similar nature:

III. BRIEF SURVEY OF FRENCH LITERATURE IN ENGLISH TRANSLATIONS.

118. FRENCH LITERATURE OF THE EIGHTEENTH CENTURY.

119. INTENSIVE STUDY OF SELECTED FRENCH AUTHORS.

COURSES IN FRENCH

I. PRIMARILY FOR UNDERGRADUATES

II. FOR BEGINNERS. Grammar, pronunciation, oral work, and composition, based on Cerf and Giese's *Beginning French* (Holt). Reading of easy modern French. The main purpose of the course is to develop reading ability.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

12. INTERMEDIATE. Reading of Modern French, with grammar, composition, pronunciation, and oral exercises. Course 12 is a continuation of course 11, and is also open to students who have had two years of high school French. Rapid review of Fraser and Squair's *Shorter French Course*. Reading from such works as Lamartine's *Jeanne d'Arc*, France's *le Livre de mon ami*, Labiche's *le Voyage de M. Perrichon* or *la Grammaire*, Halévy's *un Mariage d'amour*, selections from Daudet, Hugo's *Hernani*.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

13. ADVANCED FRENCH. This course is designed to continue and supplement the language work of course 12; it is also open to students who have had three years of high school French. It aims to develop the power of rapid and accurate reading without translation, and reasonable ability to write, with incidental attention to the spoken language. The major part of the early work is devoted to a careful study of pronunciation and to a review of the principles of grammar. This is followed by a good deal of oral work according to the direct method. Fraser and Squair's *French Grammar* is used for the written exercises, and Walter-Ballard's *Beginners' French* for the work in speaking. The later months are for the most part devoted to reading widely from the more difficult standard writers of modern fiction and drama. Occasional themes in French are required. This course will ordinarily alternate with French 14.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1920-21.

14. GENERAL VIEW OF FRENCH LITERATURE. This course offers a general introduction to French literature with the triple purpose of meeting the needs of those who wish to gain some

knowledge of that literature without doing the intensive linguistic work of French 13; of supplementing the work of French 13 by wider reading in good literature; and of laying the foundation for the specialized courses in the literatures of particular centuries. For students entering with the minimum preparation the only text to be read is the Vreeland and Michaud *Anthology of French Prose and Poetry* (Ginn); but all who enter with more than this minimum are expected to read collaterally along lines to which their tastes may lead them. Brief outline of the facts of French literature and discussion of literary values based upon Strachey's *Landmarks in French Literature* (Holt). This course is open to students who have passed French 12 or who have had three years of French in the high school. It will ordinarily alternate with French 13.

Three hours, through the year. PROFESSOR CHURCHMAN

110. ADVANCED COMPOSITION AND CONVERSATION. Designed to carry very far the student's command of the spoken and written language. Open ordinarily only to those who have passed French 13 with credit. The texts used are the latter half of Marique and Gilson's *French Composition* and R. T. Holbrook's *Living French*. Use is made of the phonograph. Much attention is given to the building of a vocabulary of common phrases.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

112. SCIENTIFIC FRENCH. Open to students who have had three years of high school French, or French 12 in college. Daniels' *French Scientific Reader* and Dolt's *Chemical French*.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

25. LITERATURE OF THE SEVENTEENTH CENTURY. A large amount of reading from the works of Corneille, Racine, Molière, Boileau, La Fontaine, Descartes, Pascal, La Rochefoucauld, Bossuet, La Bruyère, Mme. de Sévigné. Historical and critical survey of the literature of the period, based upon the Abry, Audic and Crouzet *Histoire illustrée de la littérature française*. The chief purpose of this course is to give the student a first-hand knowledge of the masterpieces of French classical literature. After a brief survey of preceding centuries, the student is expected to give most of his attention to the reading of the authors mentioned,

which reading is supplemented by discussion and the use of the manual for necessary information. To insure accuracy, some translating is done in class, particularly in the first part of the year; but most of the time in the class-room is devoted to discussions of the works read and of the literary movements studied. Open to graduates and undergraduates.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1920-21.

NOTE. *For admission to French 25 and 26, it is expected that a student shall have passed French 13 or 14 with credit, or that he shall have made a grade of A in French 12. An occasional departure from this principle may be allowed in exceptional cases.*

26. LITERATURE OF THE NINETEENTH CENTURY. Historical and critical survey, with wide reading from the most significant authors of the century. The spirit, method, and plan of the work are similar to those of course 25. First there is a brief survey of all of French literature by means of a skeleton outline and rapid reading of Strachey's *Landmarks in French Literature*. Next comes a more detailed survey of the later eighteenth century in the Abry, Audic and Crouzet *Histoire illustrée de la littérature française*. This is followed by reading and analysis of the literary masterpieces of the nineteenth century—especially lyric poetry, the novel, and the drama—accompanied by discussion of the facts and comment contained in the second manual mentioned above and in the writings of other critics. For conditions of admission to this course see note above. Open to graduates and undergraduates.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1920-21.

27a. AIMS AND METHODS OF TEACHING FRENCH, with incidental reference to German and Spanish. Lectures and collateral reading. Practice teaching, under critical supervision, according to both the direct and the text-book methods. This course is open to students who have passed with credit French 12 or German 12, or who have done the equivalent of one of these courses. A knowledge of both languages is desirable, but not necessary. Open to graduates and undergraduates.

Three hours, first semester.

PROFESSOR CHURCHMAN

Omitted in 1920-21.

27b. **TEACHERS' COURSE.** A more detailed and thorough study of the language in all its aspects, with especial reference to the technique of teaching. Review of the principles of pronunciation, accompanied by phonetic transcriptions. Topical study of the grammar, based, not upon a single text-book, but upon individual observation of French usage, and upon reference to several standard authorities. Weekly themes in French. Collateral reading, with reports upon peculiarities of French construction and idiom. Continuation of practice teaching, as in course 27a. Familiarity with the spoken language is facilitated outside the class-room by the use of the phonograph. For admission to this course a student should have passed with credit the first semester of course 13. Open to graduates and undergraduates.

Three hours, second semester.

PROFESSOR CHURCHMAN

Omitted in 1920-21.

COURSES IN SPANISH

I. PRIMARILY FOR UNDERGRADUATES

11. **ELEMENTARY COURSE.** The Hills and Ford *First Spanish Course*. Translation of simple prose. The first purpose of the course is to develop the ability to read, but a liberal use is made of oral and written exercises. Emphasis is divided between South America and Spain.

Three hours, through the year.

PROFESSOR CHURCHMAN

12. **ADVANCED COURSE.** Combination of readings from Spanish literature with more advanced study of the language, oral and written. Review of the more difficult exercises in the Hills and Ford *First Spanish Course*, with references to Ramsey, and possibly further work in composition. Direct method work from Hanssler and Parmenter's *Beginners' Spanish*. Reading of representative masterpieces, e. g., *Don Quixote*, plays by Lope and Calderón, one modern novel and one play, lyrics, and one book on some South American topic. Possibly a very brief outline of Spanish literature. Open to students who have passed course 11, or who have had two years of Spanish in the high school.

Three hours, through the year.

PROFESSOR CHURCHMAN

13. **THIRD YEAR SPANISH.** To be given when justified by the demand. Readings from Spanish literature and further work in composition and speaking. Open to students who have passed

course 12, or who have had three years of Spanish in the high school.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1920-21.

COURSES IN ITALIAN

I. PRIMARILY FOR UNDERGRADUATES

II. ELEMENTARY COURSE. The chief purpose of this course is to develop as rapidly as possible the ability to read Italian easily and accurately. As soon as a hasty survey of the elements of the language has provided the student with the necessary materials, reading is begun, and thereafter oral exercises, composition, and grammar are used simply as a means to greater accuracy in reading. Grandgent's *Italian Grammar* (revised edition); Fogazzaro's *Peregrinus*; *Italian Short Stories* (Wilkins and Altrocchi); Manzoni's *I promessi sposi*; possibly a play of Goldoni's. In the second semester either the *Inferno* or the *Purgatorio* of Dante is read.

Three hours, through the year.

Omitted in 1920-21.

PROFESSOR CHURCHMAN

CLARK UNIVERSITY

Annual Commencement

June 13, 1921, at 3 p. m.

Order of Exercises

Music

Joseph N. Truda's Orchestra

Invocation

The Reverend Maxwell Savage
First Unitarian Church

Commencement Address

John M. Clarke, Ph. D., LL. D
State Geologist of New York

Music

President's Annual Statement

Conferring of Degrees

Benediction

The audience is requested to remain seated until the academic procession
has passed out

Candidates for Collegiate Degrees

Bachelor of Arts

- | | |
|----------------------------------|-----------------------------|
| Stanley Cushman Battles | Charles Bragg Lewis |
| Albert Gustave Bergquist | Malcolm Kairke Macdonald |
| Kenneth Clark Blanchard | John George McGovern |
| Eric William Blom | John Waldemar Martinson |
| George Everett Boylan | Arthur Bruce Morrison |
| Edwin Robert Clark | Joshua Morrison |
| Randall Fredrick Cummings | Roscoe Wallace Myers |
| Walter Nelson Davis | Anton Helmer Richard Noreen |
| Abraham Fish | Paul Axel Olin |
| Albert Harrison French | Milton Fayette Prue |
| Kenneth Cheney Gesner | Stanley Enoch Rodgers, Jr. |
| Joseph Sidney Gould | Edward Dow Russell |
| John Hobson Healey | William Henderson Ryer |
| Harold Hodgkinson | Saul Andrew Seder |
| Franklin Edgar Hubbard | Luke Edward Shannon |
| Ernest William Johnson | Henry Leslie Signor |
| Harry Norton Kelley | Harold Manton Smith |
| Richard Hardie Kilpatrick | Zareh Thomajan |
| Kenneth Hawley Knight | Herbert Raymond Toombs |
| Joseph Kunin | Charles Cole Towne |
| Paul Emile Landry | Max Weinberg |
| Ashley Leavitt | Samuel Alden Wilder |
| James Preston Hutchinson Leavitt | Walter David Wood |
| | John Henry Wuorinen |

With Honor

- | | |
|------------------------|------------|
| William John Higginson | Max Meenes |
|------------------------|------------|

With High Honor

- | | |
|----------------------|---------------------|
| Harry Irving Shapiro | Miles Albert Tinker |
|----------------------|---------------------|

Annual Collegiate Honors

SENIORS

Second Honors

- | | |
|------------------------|----------------------|
| Abraham Fish | Harry Irving Shapiro |
| William John Higginson | Miles Albert Tinker |
| Max Meenes | John Henry Wuorinen |

Annual Collegiate Honors - continued

JUNIORS

First Honors

Everett Verner Stonequist

George Tashamka

Second Honors

Laurence Stanley Foster

Isaac Rabinovitz

Charles Edward Rouse

FRESHMEN

First Honors

Frank Herbert Fowler

Donald Ellwood Higgins

Second Honors

Harold Butler Armitage

Frank Jacobson

Clinton Hartley Grattan

Louis Kotick

Candidates for University Degrees

Master of Arts

~~W.H.R.~~ William John Barr

~~W.H.~~ Gordon Warner Browne

~~W.H.R.~~ Robert U. Cooper

" Gustus Albert Dunn

" Albert Farnsworth

~~W.H.~~ Harold William Heiser

~~W.H.R.~~ William Conrad Himmer

" Hugh Llewellyn Keenleyside

" Clinton Snow Leonard

~~W.H.~~ Aristotle Demetrius Michalopoulos

~~W.H.R.~~ Isadore Cecilia Williams (Miss)

~~W.H.R.~~ Ernest William Nelson

" Ernest Ralph Perkins

" Burgess B. Ross

" Hallie Loree Snyder Ross

~~W.H.~~ Pincus Schub

~~W.H.R.~~ Gustav Theodore Schwenning

~~W.H.~~ Allen Byron Stowe

~~W.H.R.~~ Isawo Tanaka

~~W.H.R.~~ Gentchi Uchiyama

~~W.H.~~ Albert Harry Wheeler

Doctor of Philosophy

Charles Buell Hurd

~~W.H.~~ Carroll Cornelius Pratt

Walter William Lucasse

~~W.H.~~ Matsusaburo Yokoyama

Samuel Ernest Pond

~~W.H.~~ Edward Zeltfuchs

Register

GRADUATE STUDENTS

HONORARY FELLOWS

- LUCY DAY BORING, Worcester *Experimental Psychology*
A.B., Mount Holyoke College, 1908; Ph.D., Cornell University, 1912.
- HENRY COLE PARKER, Long Beach, Cal. *Chemistry*
B.S., Kalamazoo College, 1915; A.M., Clark University, 1916; Ph.D., 1920. National Research Council Fellow in Chemistry.

FELLOWS

- MARJORY BATES, Waterville, Me. *Experimental Psychology*
A.B., Smith College, 1917; A.M., Clark University, 1920.
- CONRAL CLEO CALLIS, Sebree, Ky. *Chemistry*
A.B., Clark College, 1918; A.M., Clark University, 1920.
- GEORGE ALLEN COE, Grafton *Pedagogy*
B.H., International Y.M.C.A. College, 1909; A.M., Clark University, 1914.
- FREDERICK MORSE CUTLER, Worcester *History*
A.B., Columbia University, 1895; B.D., Union Theological Seminary, 1898.
- GUSTUS ALBERT DUNN, Houston, Tex. *History*
- HENRY M. HALVERSON, Worcester *Experimental Psychology*
Ph.B., University of Wisconsin, 1915; A.M., State University of Iowa, 1918.
- CHARLES BUELL HURD, New Britain, Conn. *Chemistry*
B.S., Worcester Polytechnic Institute, 1915; M.S., 1917; A.M., Clark University, 1920.
- HUGH LLEWELLYN KEENLEYSIDE, Vancouver, Canada *History*
B.A., University of British Columbia, 1920.
- HERMAN FLETCHER KURTZ, Kalamazoo, Mich. *Chemistry*
A.B., Kalamazoo College, 1918; A.M., Clark University, 1920. Special Research Fellow* in Chemistry, Research Assistant to Professor Kraus.
- WALTER WILLIAM LUCASSE, Kalamazoo, Mich. *Chemistry*
A.B., Kalamazoo College, 1917; A.M., Clark University, 1920.
- ARISTOTLE D. MICHAL, Springfield *Mathematics*
A.B., Clark College, 1920.
- EMELYN NEWCOMB PARTRIDGE, Worcester *Psychology*
- SAMUEL ERNEST POND, Woonsocket, R. I. *Biology*
B.H., International Y.M.C.A. College, 1912; A.M., Clark University, 1917.
- CARROLL CORNELIUS PRATT, Worcester *Experimental Psychology*
A.B., Clark College, 1915; A.M., Clark University, 1917.
- ISAWO TANAKA, Kobe, Japan *Pedagogy*
A.B., Trinity College (N.C.), 1920.
- BENJAMIN LEWIS WAITS, Florence, Ala. *Mathematics*
B.S., Howard University, 1914; A.M., Clark University, 1916.
- MATSUSABURO YOKOYAMA, Mito, Japan *Experimental Psychology*
A.B., Colorado College, 1917; A.M., Harvard University, 1918.
- EDWARD ZEITFUCHS, Berkeley, Cal. *Chemistry*
B.S., University of California, 1912; M.S., Massachusetts Institute of Technology, 1918.
- *This Fellowship is in part supported by a grant from the Warren Fund of the American Academy of Arts and Sciences.

HONORARY SCHOLARS

HAROLD JOSEPH GAY, Troy, N. H. A.B., Harvard University, 1919.	<i>Mathematics</i>
WILLIAM LEWIS PHINNEY, Jr., Worcester B.S., Dartmouth College, 1920.	<i>Mathematics</i>
CHARLES SCOTT PORTER, Northampton A.B., Amherst College, 1919.	<i>Mathematics</i>
A. HARRY WHEELER, Worcester, B.S., Worcester Polytechnic Institute, 1894.	<i>Mathematics</i>

SCHOLARS

WILLIAM JOHN BARR, Worcester A.B., Clark College, 1920.	<i>History</i>
GORDON WARNER BROWNE, Worcester A.B., Clark College, 1920.	<i>Chemistry</i>
JOSEPH CHILK, Worcester A.B., Clark College, 1920.	<i>History</i>
ROBERT U. COOPER, Middletown, Md. B.P.E., International Y.M.C.A. College, 1920.	<i>History</i>
HARRY CORASH, Worcester A.B., Clark College, Feb. 1921.	<i>History</i>
ALBERT FARNSWORTH, Worcester Ph.B., Brown University, 1910.	<i>History</i>
HAROLD WILLIAM HEISER, Buffalo, N. Y. B.S., Kalamazoo College, 1920.	<i>Chemistry</i>
WILLIAM CONRAD HIMMER, Worcester A.B., Harvard University, 1917.	<i>History</i>
CLINTON SNOW LEONARD, Taunton B.H., International Y.M.C.A. College, 1920.	<i>History</i>
ELLEN AUGUSTA MAHER, Worcester Graduate, Worcester State Normal School, 1912.	<i>Pedagogy</i>
MABLE THURSTON MURRAY, Holliston Pd.B., University of Maine, 1917; A.M., Clark University, 1918.	<i>History</i>
ERNEST R. PERKINS, Worcester A.B., Wesleyan University, 1917.	<i>History</i>
JIEN RIKIMARU, Tokyo, Japan Graduate, Tokyo Imperial University, 1919.	<i>Pedagogy</i>
BURGESS B. ROSS, South Lancaster	<i>History</i>
HALLIE LOREE SNIDER ROSS, South Lancaster	<i>History</i>
PINCUS SCHUB, Jerusalem, Palestine Graduate, Hebrew Teachers' Training College of Jerusalem, Palestine, 1919.	<i>Mathematics</i>
GUSTAV THEODORE SCHWENNING, Rochester, N. Y. B.H., International Y.M.C.A. College, 1920.	<i>History</i>
ALLEN BYRON STOWE, Otsego, Mich. B.S., Kalamazoo College, 1920.	<i>Chemistry</i>

RUTH TOMLINSON, Worcester	<i>History</i>
A.B., Smith College, 1914; A.M., Radcliffe College, 1916.	
GENICHI UCHIYAMA, Kuwana, Japan	<i>History</i>
A.B., Clark College, 1920.	
ISADORE WILLIAMS, Washington, D. C.	<i>Pedagogy</i>
A.B., Howard University, 1920.	

Catilla

OTHER REGULAR STUDENTS

FREDERICK RAYMOND BUTLER, Worcester	<i>Chemistry</i>
B.S., Worcester Polytechnic Institute, 1920.	
MERLE CHANDLER COWDEN, New Bedford	<i>Chemistry</i>
B.S., Worcester Polytechnic Institute, 1920.	
CATHERINE SWEETSER GORDON, Worcester	<i>History</i>
A.B., Wellesley College, 1920.	
SARAH E. JONES, Winchendon	<i>Pedagogy</i>
A.B., Bates College, 1919.	
WILLARD ELLIOTT LAWTON, Worcester	<i>Chemistry</i>
B.S., Worcester Polytechnic Institute, 1920.	
ALEXANDER BENJAMIN MACLEOD, Leicester	<i>Pedagogy</i>
JOHN BURKE O'LEARY, Worcester	<i>History</i>
A.B., Holy Cross College, 1915.	
JOSEPH FRANCIS RUSSELL, Grafton	<i>Geography</i>
A.B., Brown University, 1902; Graduate, Newton Theological Seminary, 1905.	
WILLIAM VYNE SESSIONS, Worcester	<i>Chemistry</i>
B.S., Worcester Polytechnic Institute, 1917.	

SPECIAL STUDENTS

HARRY A. BOYLE	<i>Pedagogy</i>
HELEN L. BURLEIGH	<i>Pedagogy</i>
MARY M. CALLAHAN	<i>Pedagogy</i>
JOHN B. CLARK	<i>Psychology</i>
HARRIET M. CONEY	<i>History</i>
OLIVER R. COOK	<i>Sociology</i>
LOUIS A. COTTLE	<i>Psychology</i>
MAUD A. DODGE	<i>History</i>
ELIZABETH H. GORDON	<i>History</i>
LEROY M. HANDY	<i>Geography</i>
ALSTON H. LANCASTER	<i>Psychology</i>
CHARLOTTE R. LOWELL	<i>History</i>
MARY E. McMANUS	<i>Experimental Psychology</i>
MARGARET E. MAHER	<i>Pedagogy</i>
ANNA R. MALLOZZI	<i>Pedagogy</i>
KATHERINE C. MULCAHY	<i>Pedagogy</i>
DELIA G. O'CONNOR	<i>Pedagogy</i>

ELLEN J. O'LEARY	<i>Pedagogy</i>
MARY B. O'LEARY	<i>Pedagogy</i>
HELEN D. PIGEON	<i>Experimental Psychology</i>
KATHERINE M. PLUNKETT	<i>Pedagogy</i>
ETHEL E. TREAT	<i>History</i>
GERTRUDE E. WILLIAMS	<i>History</i>

UNDERGRADUATE STUDENTS

Name	Class	Major	Home Address
ADAMS, SAMUEL LESTER	1923		Deep River, Conn.
ALGER, SANFORD EDWARD	1923		Brockton, Mass.
ALQUIST, FRANCIS NELSON	1922	Chem.	Fitchburg, Mass.
ARMITAGE, HAROLD BUTLER	1923		Worcester, Mass.
BABCOCK, ROYAL RICHARDSON	1923		Jewett City, Conn.
BAKER, GEORGE ELISHA	1922	Eng.	Northampton, Mass.
BASCOM, JAMES RAWSON	1923		Leominster, Mass.
BATES, JAMES EDMUND	1922	Eng.	Worcester, Mass.
BATTLES, STANLEY CUSHMAN	1921	Psy.	Brockton, Mass.
BENJAMIN, MENDALL	1922	Chem.	Worcester, Mass.
BERGAN, JEROME FREDERICK	Special	Chem.	Northampton, Mass.
BERGER, VICTOR HERBERT	Special		Worcester, Mass.
BERGQUIST, ALBERT GUSTAVE	1921	Hist.	Worcester, Mass.
BIXBY, FREDERICK LOVELL	1922	Psychol.	Ashburnham, Mass.
BLANCHARD, KENNETH CLARK	1921	Chem.	Brookline, Mass.
BLISS, LAWRENCE ELLIOT	1923		Springfield, Mass.
BLOM, ERIC WILLIAM	1921	P.S.S.	Worcester, Mass.
BOYDEN, WILLARD ELLIS	1922	Hist.	Sandwich, Mass.
BOYLAN, GEORGE EVERETT	1921	Chem.	Worcester, Mass.
BRUNDAGE, LEMAN STONE, JR.	1923		Bantam, Conn.
BUXTON, KENNETH SMITH	1923	Chem.	Worcester, Mass.
CAMPBELL, ELMER IRVING	1922	P.S.S.	Dedham, Mass.
CHANG, WILLIAM	1922	Biol.	Kwangtung, China
CHAOUSH, ANGELOS GABRIEL	1922	P.S.S.	Smyrna, Asia Minor
CHURCH, KENNETH BRIGGS	1922	Chem.	Norwich, Conn.
CLARK, EDWIN ROBERT	1921	Math.	Springfield, Mass.
CLEMENCE, HAROLD HOSEA	1922	Chem.	Worcester, Mass.
COOKE, JAMES ARTHUR	1923		West Boylston, Mass.
CORASH, HARRY	1921	P.S.S.	Worcester, Mass.
CROCK, ISRAEL ZELIG	1921	Chem.	Worcester, Mass.
CUMMINGS, RANDALL FREDERICK	1921	Eng.	West Collingswood, N. J.
CUTLER, JOHN DANIEL	1923		Mt. Hermon, Mass.
DAMON, CURTIS	1922	Chem.	Ipswich, Mass.
DAVIS, WALTER NELSON	1921	P.S.S.	Worcester, Mass.
DERWALLIS, JEROME FRANCIS	1923		Worcester, Mass.
DESPER, IRVING MAYNARD	1923		Worcester, Mass.
DUSAK, JOSEPH B.	1923		Worcester, Mass.
EATON, ROBERT LINCOLN	1922	Hist.	Worcester, Mass.
EATON, STACEY ELLIOT	1922	Eng.	Newburyport, Mass.
EGAN, THOMAS KELLY	1922	Hist.	New London, Conn.
ELLIOTT, RAY THEODORE	1923		Antrim, N. H.
EVERETT, KENNETH CHARLES	1922	Chem.	Lowell, Mass.
FERGUSON, ARTHUR WILLIAM	1922	Eng.	Norwich, Conn.
FIELDING, HAROLD	Special	Chem.	Worcester, Mass.
FINKELSTEIN, HERMAN	1923	P.S.S.	New Britain, Conn.

FISH, ABRAHAM	1921	Pol. Soc. Sci.	Worcester, Mass.
FOLEY, GARDNER PATRICK HENRY	1923	Eng.	Gloucester, Mass.
FORD, JOHN VINCENT	1922	Eng.	North Uxbridge, Mass.
FORSBERG, RANDOLPH WOLFRED ARCHIBALD	1923	P.S.S.	Worcester, Mass.
FOSTER, LAURENCE STANLEY	1922	Chem.	Beverly, Mass.
FOWLER, FRANK HERBERT	1923	P.S.S.	Springfield, Mass.
FOX, WINSTON EARL	1923	P.S.S.	Worcester, Mass.
FRANCIS, WINTRHOP ROBERT	1923	Physics	Avon, Mass.
FRANKEL, MILTON SAMUEL	1923	P.S.S.	Worcester, Mass.
FRANZ, ALBIN ERNEST	1923		Lawrence, Mass.
FRASER, ALEXANDER DAVID ROSS	1922	P.S.S.	Rome, N. Y.
FRENCH, ALBERT HARRISON	1921	Physics	Worcester, Mass.
GAMBUTO, FRANK PETER	1922	P.S.S.	Providence, R. I.
GAYLORD, WYNN	Special	Chem.	Beverly, Mass.
GESNER, KENNETH CHENEY	1921	Eng.	Easton, Pa.
GOELLER, ROBERT BRUCE	1923		Garden City, N. Y.
GOLDBERG, JOSEPH	1923		Worcester, Mass.
GOLDEN, SHERMAN ELIAS	1923	Biol.	North Andover, Mass.
GOULD, JOSEPH SIDNEY	1921	P.S.S.	Detroit, Mich.
GRAF, FRANCIS OTTO	1923	Psy.	New Rochelle, N. Y.
GRATTAN, CLINTON HARTLEY	1923	Eng.	Salem, Mass.
GROOP, WALDEMAR HERMAN	1923		Fitchburg, Mass.
GUNTER, WILLIAM	1921	Eng.	Worcester, Mass.
HADLEY, LEONARD D.	1923		Melrose Hlds., Mass.
HALE, MERRILL RAYNER	1923		Worcester, Mass.
HAM, GEORGE EDWIN	1922	Eng.	Worcester, Mass.
HARD, ERNEST	1922	P.S.S.	Bantam, Conn.
HEALEY, JOHN HOBSON	1921	Biol.	Palmer, Mass.
HEFFERNAN, DANIEL JAMES	1922	Chem.	Spencer, Mass.
HIGGINS, DONALD ELLWOOD	1923	Phys.	Marston's Mills, Mass.
HIGGINS, ROGER WOLCOTT	1923		Marston's Mills, Mass.
HIGGINSON, WILLIAM JOHN	1921	Eng.	Hartford, Conn.
HODGKINSON, HAROLD	1921	Chem.	Worcester, Mass.
HOLMES, RICHARD MACDONALD	1923	P.S.S.	Mt. Vernon, N. Y.
HOOD, EVERETT WESLEY	1923	P.S.S.	Millville, Mass.
HOWARD, PALMER PECKHAM	1923		Waterford, Conn.
HOWE, GEORGE FRANKLIN	1922	Chem.	Worcester, Mass.
HUBBARD, FRANKLIN EDGAR	1921	Physics	Jefferson, Mass.
HUMES, WARREN MAIN	1922	P.S.S.	Worcester, Mass.
HUNTER, THOMAS, JR.	1923		Worcester, Mass.
HUSBANDS, ATHELSTON	Special	Biol.	Cambridge, Mass.
IVOK, LEO	1922	Hist.	Worcester, Mass.
JACOBSON, FRANK	1923	Biol.	East Greenwich, R. I.
JANAS, JOSEPH	1923		Providence, R. I.
JOHNSON, ERNEST WILLIAM	1921	Chem.	Worcester, Mass.
KELLEY, HARRY NORTON	1921	Biol.	Worcester, Mass.
KILPATRICK, RICHARD HARDIE	1921	Biol.	Boylston, Mass.
KNIGHT, KENNETH HAWLEY	1921	Chem.	Worcester, Mass.
KNOX, WALTER FREDERICK	1922	P.S.S.	Worcester, Mass.
KOTICK, LOUIS	1923	Biol.	Springfield, Mass.
KRIKORIAN, ARMEN KRIKORE	1922	P.S.S.	New Haven, Conn.
KUNIN, JOSEPH	1921	Chem.	Worcester, Mass.
LABOVITES, GEORGE P.	Special		Greece
LAFLEUR, ALBERT	1922	P.S.S.	Worcester, Mass.
LALIBERTÉ, NOÉ ANDRÉ	1923		Fisherville, Mass.
LANDRY, PAUL EMILE	1921	P.S.S.	Worcester, Mass.
LANDRY, PHILIP RENÉ	1921	P.S.S.	Worcester, Mass.
LEAVITT, ASHLEY LEONARD	1921	P.S.S.	Worcester, Mass.
LEAVITT, JAMES PRESTON HUTCHINSON	1921	P.P. 6	Worcester, Mass.
LEHMANN, PAUL WILLIAM	1923		Worcester, Mass.

LEONARD, ELMER CRAWFORD	1923		Milford, Conn.
LEVENSON, BENJAMIN	1923	Hist.	Worcester, Mass.
LEVINE, EDWARD	1922	P.S.S.	Colchester, Conn.
LEWIS, CHARLES BRAGG	1921	P.S.S.	Worcester, Mass.
LIM, JOHN KHO LEAI	Special	Psychol.	Amoy, China
LONG, EDWARD JAMES	1921	Hist.	Worcester, Mass.
LOOMIS, THEODORE ROOSEVELT	1922	P.S.S.	Windsor, Conn.
LYNCH, HAROLD EDWARD	1923	Chem.	Worcester, Mass.
MACDONALD, MALCOLM KAIRKE	1921	Psychol.	Lyndonville, Vt.
MAIN, KENNETH WALTON	1923		Norwich, Conn.
MANSUR, ERIC WOODALL	1922	Chem.	Worcester, Mass.
MARTIN, ALBERT RICHARD	1923		Williamstown, Vt.
MARTINSON, JOHN WALDEMAR	1921	Hist.	Millis, Mass.
MASTERS, CECIL DANA	Special	Chem.	Worcester, Mass.
MCGOVERN, JOHN GEORGE	1921	P.S.S.	New Haven, Conn.
MEENES, MAX	1921	Psychol.	Worcester, Mass.
METCALF, CHARLES AUSTIN	1922	P.P. 9	Worcester, Mass.
MILLMAN, JACK	1923		New York, N. Y.
MILLMAN, MAX	1922	Biol.	Springfield, Mass.
MONTGOMERY, EUGENE PROUTY	1923		Leicester, Mass.
MORAN, JOHN AUSTIN	1922	Psychol.	Worcester, Mass.
MORRISON, ARTHUR BRUCE	1921	Chem.	Worcester, Mass.
MORRISON, JOSHUA	1921	P.P. 6	Brockton, Mass.
MYERS, ROSCOE WALLACE	1921	P.P. 8	Worcester, Mass.
NADLER, AARON	Special	Biol.	Worcester, Mass.
NEAL, ARTHUR MORRILL	1923		West Boylston, Mass.
NELSON, OLIN EVERETT	Special	Chem.	Worcester, Mass.
NICHOLS, CORYDON RICHARD	1923	Math.	Grafton, Mass.
NOREEN, ANTON HELMER RICHARD	1921	Chem.	Chicago, Ill.
O'BRIEN, JOHN FRANCIS	1923		Willimantic, Conn.
OLIN, PAUL AXEL	1921	P.S.S.	Worcester, Mass.
OLSEN, WALTER WESLEY	1923	P.S.S.	Gardner, Mass.
PARKES, ALANSON WILLISTON, JR.	1922	Chem.	Sandwich, Mass.
PARTRIDGE, ALLAN BAKER	1922	P.S.S.	Worcester, Mass.
PARTRIDGE, ROLAND EDWARD	1922	P.S.S.	Boylston, Mass.
PEARSE, HARRY	1923		Southboro, Mass.
PELLETIER, VALMORE ALEXIS	1922	Chem.	Avon, Mass.
PERMAN, SAMUEL	1923	P.S.S.	Worcester, Mass.
PIKE, OTTO LEHMAN	1923		E. Woodstock, Conn.
POPKO, PETER FRANK	1923	Chem.	E. Woodstock, Conn.
PRATT, STEWART MARQUAND	1922	P.S.S.	E. Woodstock, Conn.
PRUE, MILTON FAYETTE	1921	Chem.	Oak Grove, Del.
QUINN, JAMES	1923		Worcester, Mass.
RABINOVITZ, ISAAC	1922	Physics	Worcester, Mass.
RIANI, ALFRED JAMES	Special		Marlboro, Mass.
RIFOLT, NILS AUGUST	Special	Physics	Worcester, Mass.
RODGERS, STANLEY ENOCH, JR.	1921	Chem.	Oak Bluffs, Mass.
ROUSE, CHARLES EDWARD	1922	Eng.	Lynn, Mass.
ROWLAND, ROBERT JAMES	1922	Chem.	Hartford, Conn.
RUSSELL, EDWARD DOW	1921	Chem.	Worcester, Mass.
RYER, WILLIAM HENDERSON	1921	Chem.	North Reading, Mass.
SAFELY, FREDERICK ATHERTON	1923	P.S.S.	Cedar Rapids, Ia.
SCHULTHEISS, ROBERT CHARLES	1922	P.S.S.	New Haven, Conn.
SCUDDER, HOWARD HINCKLEY	1922	P.S.S.	Osterville, Mass.
SEDER, SAUL ANDREW	1921	P.S.S.	Worcester, Mass.
SHANNON, LUKE EDWARD	1921	Hist.	Worcester, Mass.
SHAPIRO, HARRY IRVING	1921	P.S.S.	New Haven, Conn.
SIEGEL, HAROLD	1923		Worcester, Mass.
SIGNOR, HENRY LESLIE	1921	Hist.	Worcester, Mass.
SMALL, SHERWOOD HARRY	1922	P.S.S.	Worcester, Mass.

SMITH, DAVID HARTHAN	1920	Eng.	Worcester, Mass.
SMITH, HARMON ALLEN	1923		Pomfret, Conn.
SMITH, HAROLD MANTON	1921	Chem.	North Dana, Mass.
SMITH, ROGER RAMSDELL	1923		Gardner, Mass.
SMITH, SHELDON BRUCE	1923		Bantam, Conn.
SOMMERMAN, HENRY HERMAN	1922	Math.	Southboro, Mass.
STEVEN, ROBERT STEWART	1923		Worcester, Mass.
STONEQUIST, EVERETT VERNER	1922	P.S.S.	Worcester, Mass.
STURTEVANT, RALPH EILLS	1922	P.P. 12	Greenfield, Mass.
TASHAMKA, GEORGE	1922	P.S.S.	Worcester, Mass.
TAYLOR, HIRAM SYLVANUS, JR.	1923	Biol.	Westboro, Mass.
TEGELBERG, JULIUS JOHN	1922	Biol.	Worcester, Mass.
THAYER, DWIGHT HARRISON	1921	P.S.S.	Montello, Mass.
THOMAJAN, PUZANT KEVORK	1923		Worcester, Mass.
THOMAJAN, ZAREH	1921	P.S.S.	Worcester, Mass.
THOMAS, JOSIAH LINCOLN	1923		Middleboro, Mass.
TINKER, MILES ALBERT	1921	Chem.	Huntington, Mass.
TOOMBS, HERBERT RAYMOND	1921	Chem.	Holden, Mass.
TOWNE, CHARLES COLE	1921	Chem.	Mendon, Mass.
TOWNE, STANWOOD EUGENE	1923		Worcester, Mass.
WALL, RAYMOND AGNEW	1923		Graniteville, Mass.
WARMBIER, EDWARD JOHN	1922	P.S.S.	Meriden, Conn.
WEINBERG, MAX	1921	P.S.S.	Holyoke, Mass.
WHEELER, FRANCIS JEWETT WILDER	1923		Worcester, Mass.
WHITE, LESTER PERRINE	Special		Brooklyn, N. Y.
WHITE, VINTON ESTEN	1922	Biol.	Uxbridge, Mass.
WILDER, SAMUEL ALDEN	1921	Physics	Springfield, Mass.
WILLARD, GEORGE HOWARD	1923		Worcester, Mass.
WILLIAMS, CARL ALBERT	1922	Eng.	Haverhill, Mass.
WINN, WARREN BAILEY	1922	P.S.S.	Worcester, Mass.
WOOD, WALTER DAVID	1921	Chem.	Worcester, Mass.
WOODMAN, DANIEL EDWIN	1922	P.P. 6	Taunton, Mass.
WUORINEN, JOHN HENRY	1921	Hist.	Gardner, Mass.
YOUNG, WARREN ARCHIBALD	1923		Palmer, Mass.
ZWEIGBAUM, ABRAHAM	1923	P.S.S.	New Haven, Conn.

SUMMARY

Total of graduate students		77
Fellows and scholars	45	
Other regular students	9	
Special students	23	
Total of undergraduate students		201
Regular students	188	
Special students	13	
Total		278

Clark University Bulletin

Summer School Number



Worcester, Massachusetts

March, 1921

Clark University Bulletin

NUMBER 3

MARCH, 1921

Summer School Number

The Bulletin is published in October, December, February, and May
and at other times as occasion arises

Entered as second-class matter December 29, 1920, at the post office at Worcester, Mass.
under the Act of August 24, 1912. Acceptance for mailing at special rate of postage provided
for in section 1103, Act of October 3, 1917, authorized January 24, 1921

Calendar

1921			
JULY	5	Tuesday	8 a. m. Registration begins 12 m. Opening Assembly 8-10 p. m. Reception to Members of the Summer School by President and Mrs. Atwood, at the President's House
JULY	6	Wednesday	8 a. m. Lectures and Recitations begin
JULY	7	Thursday	8 p. m. Dramatic Reading by Miss Beatrice Herford
JULY	12	Tuesday	8 p. m. Open Lecture under the Auspices of the Department of History and International Relations
JULY	14	Thursday	8 p. m. Open Lecture on Travel and Exploration in Alaska, by President Atwood (Illustrated)
JULY	16	Saturday	Field Excursion to Mt. Monadnock, conducted by President Atwood
JULY	19	Tuesday	8 p. m. Open Lecture under the Auspices of the Department of History and International Relations
JULY	21	Thursday	8 p. m. Open Lecture on Japan, by Miss Semple (Illustrated)
JULY	26	Tuesday	8 p. m. Open Lecture under the Auspices of the Department of History and International Relations
JULY	28	Thursday	8 p. m. Dramatic Reading under the Auspices of the Department of English
AUG.	2	Tuesday	8 p. m. Open Lecture under the Auspices of the Department of History and International Relations
AUG.	4	Thursday	8 p. m. Open Lecture on Java, by Miss Semple (Illustrated)
AUG.	9	Tuesday	8 p. m. Open Lecture under the Auspices of the Department of History and International Relations
AUG.	12	Friday	Work of the Summer School ends

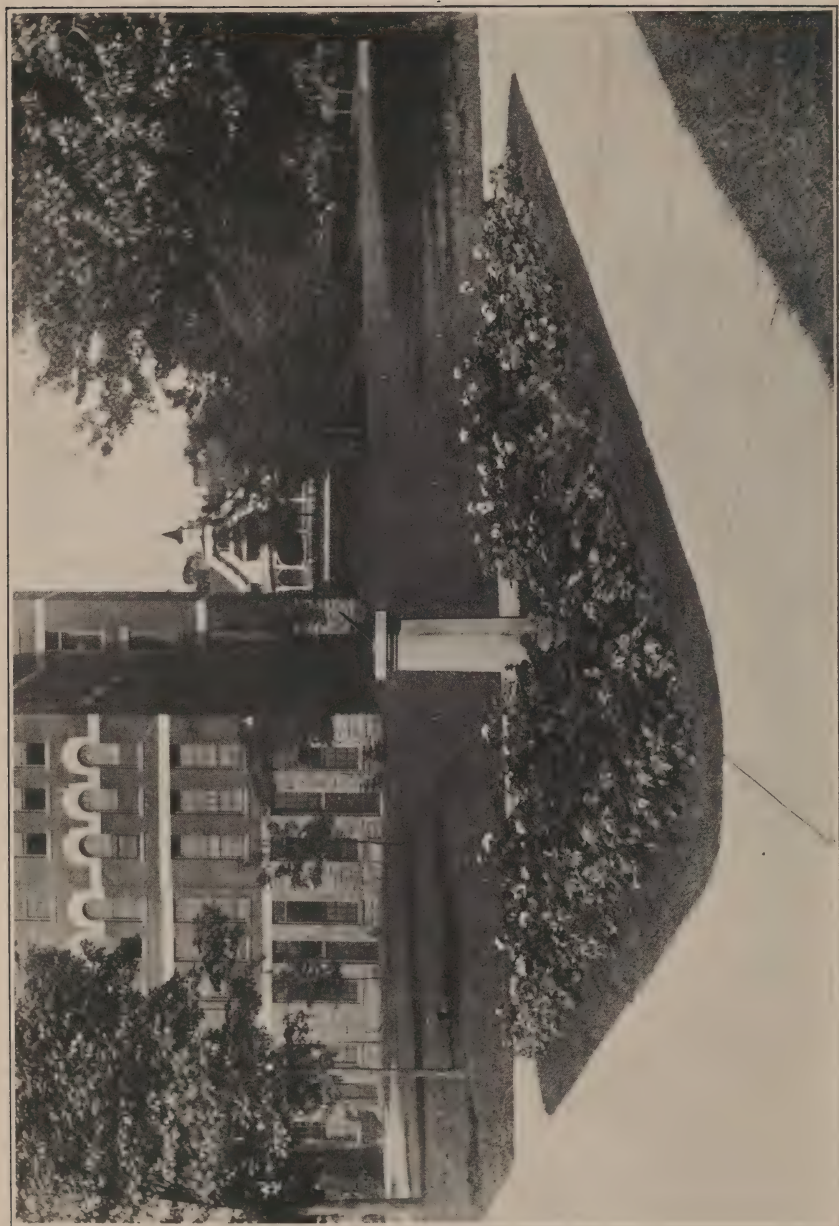
Schedule of Lecture and Recitation Hours

INSTRUCTOR	8	9	10	11	12
ATWOOD	Geography 1		Geography 6	Geography 2	
BARNES	History 3	History 4			
BLAKESLEE			History 1	History 2	
BROOKS	Geography 8		Geography 9		
COE					History 5
DEXTER	Spanish 1	Spanish 2			
DODD		English 1	English 2		
FRAZEE				Education 1	Education 2
JAMES					Geography 7
MÉTIVIER		French 2		French 1	
PORTER		Psychology 1		Psychology 2	
RANDOLPH			German 2		
SEMPLE		Geography 3		Geography 4	
THOMAS		Geography 5	Geography 6		

NOTE. All the above courses are Summer School courses. The symbol "SS" before the numeral, which distinguishes courses in the Summer School from those given during the regular academic year, is omitted.



THE MAIN BUILDING FROM UNIVERSITY PARK



THE 1913 SUN DIAL

Opening of the Summer School

The Trustees of Clark University announce the opening of the institution for a six weeks' summer session beginning Tuesday, July 5, and ending Friday, August 12, 1921. The opening of the Summer School is in line with the special efforts being put forth by the University, with all its resources reorganized under a new administration and united for work in a manner which has hitherto been impossible, to increase the scope of its service to New England and to the country at large.

SUBJECTS OF INSTRUCTION

It has been decided for this opening session to concentrate on a few subjects of wide and general interest in which the University is particularly well fitted to organize a scheme of summer school instruction. The work of the session will consequently center in the Departments of Geography and History, but courses in meteorology and climatology will be offered in connection with the work in geography, and in civics in connection with the work in history. Of especial interest to teachers will be courses in educational psychology and elementary education. The statement was made in a previous circular that language instruction would be confined to English, but in response to repeated requests several courses in modern foreign languages have been added.

All the work of the Summer School will be intensive, and courses will meet five times a week. Enrolment in two courses will be considered full work for a student.

LOCATION AND BUILDINGS

Clark University occupies a tract of ground lying between Main and Woodland and Maywood and Downing Streets in the city of Worcester, situated about a mile and a quarter from the City Hall on one of the principal trolley lines. Some cars run directly from the Union Station past the University; other cars make connection at the City Hall with cars running south on Main Street which pass the University.

Besides the campus, with the academic buildings proper, the University owns a small athletic ground between Maywood and Beaver Streets, the Dining Hall and some unoccupied land at the corner of Woodland and Charlotte Streets, and the Hadwen Arboretum, on Lovell Street, about twenty acres in extent.

The office of the Summer School is located in the Main Building, which contains also the general offices of Clark University, as well as the administrative offices of the Collegiate Department. In the Main Building are the Assembly Hall and many of the lecture and recitation rooms, and in this building most of the exercises of the Summer School will be held. The office of the President of the University is in the Library Building.

In the Science Building are located the lecture rooms and laboratories of the Departments of Physics and Chemistry.

All the classroom, library, and laboratory facilities of the University, so far as they pertain to the subjects of instruction offered, will be at the disposal of the students of the Summer School.

THE LIBRARY

The Library of the University was provided with a generous endowment by the founder of the institution, and it affords especially favorable opportunities for study and research. It occupies a large and handsome building at the corner of Main and Downing Streets. The Library now owns about 96,000 bound volumes and pamphlets, and the Reading Rooms receive over 500 journals.

Tuesday and Friday mornings of each week books recently added to the Library are placed upon a table in the Reference section, where they remain for three days. This affords opportunity for the examination of new books in all departments before they are placed upon the shelves. About once a month by courtesy of our booksellers new books are placed for inspection upon one of the tables in the Reference section. Recommendations may be made for the purchase of any of these books, and will receive prompt attention from the Librarian.

In addition to the library facilities provided by the University, students may avail themselves of the privileges of several other excellent libraries in the city. The Worcester Public Library contains some 237,000 volumes and makes accessible to the public about 600 newspapers and magazines. The library of the

American Antiquarian Society, housed in the national headquarters of the Society in Worcester, contains about 136,000 volumes and some 202,000 pamphlets. The library of the Worcester District Medical Society is also at the disposal of members of the University.

THE EDUCATIONAL MUSEUM

On the top floor of the Main Building is an Educational Museum with an extensive collection of material designed to illustrate the evolutionary and dynamic aspects of education. Maps, charts, diagrams, lantern slides, and other illustrative apparatus from many countries have been brought together here in great variety. Most of the collections have regularly been available to the teachers of Worcester and vicinity, and some of the material of the Museum will be utilized in the courses in education in the Summer School.

ADMISSION TO THE SUMMER SCHOOL

Graduates of colleges, technical schools, normal schools, or secondary schools, college students, and teachers in schools of any grade will be admitted as students upon submission of proper credentials. Other applicants will be admitted upon approval of their qualifications for the work which they desire to do.

REGISTRATION

Persons who desire to enter the Summer School should secure an application form from the Secretary at as early a date as possible and return it properly filled out. A registration fee of two dollars should be sent with the form when it is returned to the Secretary. This amount will be deducted from the tuition fee when the latter is paid.

It is exceedingly desirable that the registration of all students in all courses be completed on July 5. To this end students should as far as possible determine before the opening of the session through personal conference or correspondence with the Secretary or the various instructors the courses in which they expect to register.

As stated on page 5, enrolment in two courses will be considered full work for a student. Special permission to take a third course will be granted to those who seem qualified to carry

more than the usual amount of work successfully. Those who desire to register for a single course may do so.

Formal registration will begin Tuesday, July 5, at 8 A. M., in the Main Building. The opening assembly of the Summer School will be held in the Assembly Hall July 5 at 12 o'clock. All classes will meet on Wednesday, July 6.

CREDIT FOR WORK DONE

Some of the courses of instruction in the Summer School will be of graduate and some of college grade; many of the courses will be open both to graduate students and to undergraduates. The satisfactory completion of a full course will entitle the student to college credit of three semester hours, the credit given for a regular three hour course in the Collegiate Department of the University. Graduate credit will depend upon the amount and quality of the work done. Such credit may be used in fulfilling the requirements for the degrees of Master of Arts or Doctor of Philosophy in Clark University. A certificate, with a record of work done and credit awarded, will be furnished at the close of the session to all students who desire it.

It will of course be understood that credit secured for work done in the Summer School can be counted toward the degrees given in the Graduate School and Collegiate Department of the University only by students who have fulfilled the regular requirements for admission to candidacy for those degrees.

TUITION

Students taking two courses will pay a fee of thirty dollars; those who receive permission to take a third course will pay an additional fee of ten dollars. Those who desire to take but one course may do so upon payment of a fee of twenty dollars, which will entitle them also to all the special privileges of the Summer School.

Tuition may be paid at any time before the opening of the session, and must be paid by noon of Saturday, July 9. Checks should be made payable to the Bursar of Clark University.

OUTSIDE ACTIVITIES

Several additional features are being planned to increase the opportunities of students and instructors not only for practical profit from the everyday work of the lecture-room, but for relaxa-

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CLARK UNIVERSITY
SUMMER SCHOOL

□ □

PUBLIC LECTURES

□

1921

Course on
INTERNATIONAL RELATIONS

TUESDAY, JULY 12TH

WAR TIME DIPLOMACY AT A DIPLOMATIC
CROSSROADS IN EUROPE

George Grafton Wilson, LL.D.
Counselor at United States Legation,
The Hague, 1914

MONDAY, JULY 18TH

THE INTERNATIONAL OUTLOOK

Hamilton Holt, LL.D.
Representative of the League to enforce
Peace at the Peace Conference,
Paris, 1918-1919

TUESDAY, JULY 26TH

SOME MISCONCEPTIONS CONCERNING
THE PEACE CONFERENCE AT PARIS

Charles Homer Haskins, LL.D.
Chief of the Division of Western Europe,
American Commission to negotiate
Peace, Paris, 1918-1919

TUESDAY, AUGUST 2ND

THE ECONOMIC EFFECTS OF THE PEACE

Allyn A. Young, Ph.D.
Chief of Division of Economics and Statistics,
American Commission to negotiate
Peace, Paris, 1918-1919

MONDAY, AUGUST 8TH

BRITAIN AND THE EASTERN QUESTION

J. Holland Rose, LL.D.
Prof. of History
Cambridge University, England

THURSDAY COURSE

THURSDAY JULY 14TH

ILLUSTRATED LECTURE ON JAPAN

Ellen Churchill Semple
President of the Association of
American Geographers

THURSDAY JULY 21ST

ILLUSTRATED LECTURE ON TRAVEL AND EXPLORATION IN ALASKA

Wallace W. Atwood, Ph.D.
President of Clark University

THURSDAY JULY 28TH

AFTER SHAKESPEARE: BARRIE

Loring H. Dodd, Ph.D.
Prof. of Rhetoric, Clark University

THURSDAY AUGUST 4TH

ILLUSTRATED LECTURE ON JAVA

Ellen Churchill Semple
President of the Association of
American Geographers

PRICE OF TICKETS

Both Courses	\$4.50
Course on International Relations		3.00
Thursday Course	2.50
Single Lecture75

The Lectures will be given in the

UNIVERSITY LIBRARY AUDITORIUM
at 8 p. m.

tion and enjoyment as well. Among these are an open lecture course, entertainments, and excursions to places of scientific or historic interest. The working schedule has been planned so that those who desire to take advantage of the excursions or independently to visit Boston or other neighboring cities at week-ends may do so without detriment to their regular work. This year many will wish to attend the Pilgrim Pageant at Plymouth.

The University possesses a well-equipped gymnasium, and provides opportunity for both indoor and outdoor exercise. The tennis courts of the institution are among the best in the city. The summer climate of Worcester is pleasant; periods of excessive heat are rare; and Lake Quinsigamond, just outside the city limits and easily accessible by trolley, offers excellent facilities for boating and canoeing. Coes Pond, within easy walking distance of the University, is a favorite resort of summer bathers.

OPEN LECTURES

Two courses of lectures, which will be open to all members of the Summer School without extra cost, are being arranged for Tuesday and Thursday evenings at eight o'clock. The Tuesday evening lectures will be in charge of the Department of History and International Relations of Clark University; names of speakers and titles of lectures will be announced later. The Thursday evening course will include an illustrated lecture by President Atwood, two illustrated lectures by Miss Semple, and two dramatic readings.

For persons not members of the Summer School the price of a ticket of admission to all the lectures of both courses will be five dollars; to all the lectures of either course, three dollars; to single lectures, seventy-five cents.

BOARD AND ROOMS

The University Dining Hall will be open during the session of the Summer School, and will provide table board at not more than seven dollars per week. Furnished rooms in the vicinity of the University may be secured at reasonable rates. A list of available rooms is now being compiled, and the prices asked indicate that a room for one person will cost from three dollars a week up, for two persons from five dollars up.

Officers of Instruction and Administration

WALLACE WALTER ATWOOD, PH.D.	GEOGRAPHY
President of Clark University and Director of the Summer School	
ELLEN CHURCHILL SEMPLE, A.M.	GEOGRAPHY
Lecturer in Geography, Clark University	
HELEN GOSS THOMAS, A.B.	GEOGRAPHY
Formerly Instructor in Geography, Wellesley College	
CHARLES FRANKLIN BROOKS, PH.D.	
METEOROLOGY AND CLIMATOLOGY	
Meteorologist, U. S. Weather Bureau, Washington	
PRESTON EVERETT JAMES, A.M.	GEOGRAPHY
Formerly Assistant in Geology and Geography, Harvard University	
GEORGE HUBBARD BLAKESLEE, PH.D.	HISTORY
Professor of History and International Relations, Clark University	
HARRY ELMER BARNES, PH.D.	HISTORY
Professor of History, Clark University	
GEORGE ALLEN COE, A.M.	CIVICS
Superintendent of Schools, Grafton and Upton	
JAMES PERTICE PORTER, PH.D.	PSYCHOLOGY
Collegiate Dean and Professor of Psychology, Clark University	
LAURA FRAZEE, B.S.	EDUCATION
Director, Bureau of School Correspondence, Junior Red Cross, Washington	
LORING HOLMES DODD, PH.D.	ENGLISH
Professor of English, Clark University	
JAMES MÉTIVIER, A.B.	FRENCH
Assistant Professor of French, Clark University	
BURT LEE DEXTER, A.B.	SPANISH
Formerly Teacher in Iquique English College, Iquique, Chili	
CHARLES BREWSTER RANDOLPH, PH.D.	GERMAN
Professor of German and Secretary of the Summer School, Clark University	

WALLACE WALTER ATWOOD

is a graduate of the University of Chicago, where he also received the degree of Doctor of Philosophy. From 1901 to 1913 he was a member of the Faculty of that University, going to Harvard in 1913 to be Professor of Physiography, a position which he held until he came to Clark last fall. He has headed numerous geographical expeditions to various parts of the American continent, being engaged for three years in the conduct of Government expeditions to Alaska and travelling widely through that territory in the investigation of its mineral resources. His report on the Mineral Resources of Southwestern Alaska contains the fullest information yet available on that part of the territory. For many years he has been actively engaged in the work of the United States Geological Survey. He has written extensively, both for the Government and for various scientific and educational journals, and has recently published through Ginn and Company a Geography embodying the new ideas which he has done so much to introduce in this field of study. The work of the Summer School will in a sense constitute the opening of President Atwood's new Department of Geography at Clark University.

ELLEN CHURCHILL SEMPLE

received the degrees of Bachelor of Arts and Master of Arts at Vassar College, and did graduate work there and at the University of Leipzig. She is one of the foremost American geographical scholars, her special field being Anthro-Geo-Geography, the study of the influence of geographic conditions on the development of society. Miss Semple is a member of various learned societies, and is President of the Association of American Geographers. She is the author of a number of books and of numerous articles in geographical journals.

HELEN GOSS THOMAS

is a graduate of Wellesley College, where she was until recently an instructor in the Department of Geography. During the last four years she has been a research associate with President Atwood in geographic investigation. She is the author of many important geographic articles, the most recent of which is "How shall we teach Geography?", in the October number of the *Journal of Geography*.

CHARLES FRANKLIN BROOKS

received his bachelor's degree and his doctor's degree from Harvard University. He was formerly an instructor in the Department of Geography at Yale University, and is now in the service of the United States Weather Bureau. He is Secretary of the American Meteorological Society.

PRESTON EVERETT JAMES

received his bachelor's and his master's degree from Harvard University, and for the past two years has been an assistant in the Departments of Geology and Geography there. He is a member of the U. S. Geological Survey and has assisted President Atwood in his Survey field investigations. He has recently traveled through the northern countries of South America.

GEORGE HUBBARD BLAKESLEE

is a graduate of Wesleyan University, and received his doctor's degree from Harvard. His graduate work there was preceded by graduate study at the Johns Hopkins University and two years in Europe, spent in travel and in study at the Universities of Berlin, Leipzig, and Oxford. He came to Clark soon after the opening of the College. In 1907 he was granted leave of absence for a trip around the world, and in 1913 he traveled through most of the countries of South America, not only visiting the leading cities but making some extended excursions into the interior. In 1915 he was Lecturer on International Law at the Harvard University Summer School. During the war Professor Blakeslee was a member of a Government Commission under the Department of State which prepared material on international relations for the American delegation to the Peace Conference at Paris. He is well-known as a lecturer; has written extensively on topics of current historical interest; and has planned and managed the successful History Conferences at Clark University, which have attracted wide attention during the past ten years.

HARRY ELMER BARNES

received his bachelor's degree from Syracuse University, and his doctor's degree from Columbia, and has given instruction in history at both these institutions. He came to Clark in 1918, and after holding a professorship in history at the New School for Social Research in New York City during 1919-20 was recalled to

Clark last fall. In the course of a very active academic career Professor Barnes has been engaged in a number of important tasks outside the institutions in which he has been a teacher. He was historian to the New Jersey Prison Inquiry Commission in 1917, and to the Pennsylvania Penal Commission in 1918; and has lately been research assistant to counsel in the famous labor case of Michaels vs. Hillman. He has written voluminously on historical and sociological topics, and has had extensive experience as a summer school lecturer, having been engaged in summer school work at Syracuse University, the University of Montana, and the University of Oregon. At the latter institution he was Assembly Lecturer during the summer of 1920.

GEORGE ALLEN COE

did his undergraduate work at the International Young Men's Christian Association College at Springfield. His graduate work has been done at Clark University in psychology and pedagogy. For the past six years he has served as a Superintendent of Schools, latterly at Grafton and Upton.

JAMES PERTICE PORTER

is a graduate of Indiana University, and received the degree of Doctor of Philosophy under President Hall at Clark. He has been connected with this institution since the year after the establishment of the College, and has been Dean of the Collegiate Faculty since 1909. He has lectured extensively throughout the country on many aspects of psychology, and during the past two summers has attracted considerable attention as an investigator at first hand of conditions in certain large manufacturing plants. He has conducted several courses of lectures for teachers of Worcester County, and has given summer school instruction at Indiana University and elsewhere. He is editor of the *Journal of Applied Psychology*.

LAURA FRAZEE

is a graduate of the Indiana State Normal School, and did graduate work at Stanford University, at the University of Chicago, and at Teachers College, Columbia University, where she received the degree of Bachelor of Science. She has been engaged in teaching in the elementary grades at Frankfort, Ind., in the supervision of primary grades at Terre Haute, Ind., in critic teaching in the City Normal School at Indianapolis, and in the supervision of the

Elementary Training School, teaching of method, and direction of practice teaching at the State Normal School at Bowling Green, Ky. Since June, 1919 she has been engaged in educational work at Washington with the Junior Red Cross, developing and directing the work of the Bureau of School Correspondence of that organization.

LORING HOLMES DODD

received his bachelor's degree at Dartmouth, his master's degree at Columbia, and his doctor's degree at Yale. After considerable experience as a teacher of English in secondary schools, in 1910 he came to Clark, where he has distinguished himself particularly by the thoroughly practical character of his work with undergraduates. He is keenly interested in art and the drama, and during the past season has lectured on literary topics before various organizations in the city. He is the author of a very useful textbook on Everyday Rhetoric.

JAMES MÉTIVIER

is a graduate of Harvard, where he was an instructor in French for some time after his graduation. He has had extensive experience in teaching modern languages, particularly French, in several of the leading secondary schools. During the war he was engaged in Y. M. C. A. work in two of the southern camps, and it was from this work that he came to Clark at the close of the war to be Assistant Professor of French.

BURT LEE DEXTER

after his graduation at Bates College spent two years in public school work in Maine and Connecticut. From 1915 to 1920 he was engaged in teaching in Bolivia and Chile.

CHARLES BREWSTER RANDOLPH

is a graduate of Wabash College and holds advanced degrees from Harvard. After teaching for three years at the University of Illinois Preparatory School he went to Germany to study classical philology. During the year which he spent at the University of Halle and the summer preceding and that following, which were spent in Germany, he devoted particular attention to the study of German, and he returned to Germany again in 1909 to renew his acquaintance with the language and people. He has been connected with Clark College since 1903, and has been in charge of the Department of German since 1918.

Courses of Instruction

Courses marked with an asterisk may be counted as a whole or in part by properly qualified students toward fulfilment of the requirement of work in residence at Clark University for the degrees of Master of Arts and Doctor of Philosophy.

GEOGRAPHY

SS1. Origin and History of Land Forms: A Study of Physiography. The influence of exposure to weather conditions, the work of rivers, glaciers, waves, winds, and ground waters will be analyzed in detail, and the history of the land forms due to the work of these agents will be presented. The great scenic features of this continent, such as the Grand Canyon of the Colorado, the lofty mountains, the great plateaus, Niagara Falls, the Great Lakes, and certain of the shore-lines will be used as the basis for developing many of the principles involved in the origin and history of topographic features. The physiography of New England and of other selected areas will be analyzed in detail. Field excursions will be conducted to illustrate some of the work of the course.

Daily, except Saturday, at 8.

MR. ATWOOD

*SS2. Regional Geography of North America. The fundamental basis for the subdivision of the continent into natural regions will first be treated and later the analysis of the geography of each one of the natural regions will be presented. The study will start with a consideration of the natural regions on the Atlantic border and proceed westward, northward, and southward, until the geography of the entire continent has been presented as fully as possible in the time available. The advantages in pursuing research work or in teaching geography based upon the regional treatment will be illustrated throughout the progress of the course.

Daily, except Saturday, at 11.

MR. ATWOOD

SS3. Geographic Factors in American History. Textbook and lectures. A study of the influence of geographic conditions upon the course of American history; the significance of the continental and interoceanic location of the United States, the influence of

this location upon aboriginal and modern culture; the importance of coastlines, mountains, plains, lakes, rivers, climate, soils, vegetation, and geographical area of the country at successive periods of its history; the immediate effects of these natural conditions upon discovery, explorations, settlement, national territorial expansion and economic development, as well as their indirect effects upon social and political development. Attention will be directed also to the interplay of geographic with non-geographic factors.

Daily, except Saturday, at 9.

MISS SEMPLE

*SS4. The Geography of the Mediterranean Region, especially in Relation to Ancient History. Lectures and assigned readings. A geographic interpretation of ancient history in Mediterranean lands, embracing a study of the various geographic factors operative in the countries bordering this enclosed sea under the peculiar influences of the Mediterranean climate, at a time when the Mediterranean region constituted most of the known world. The lectures discuss the intercontinental location of the Mediterranean Sea, the barrier boundaries and the breaches in the same, the size, shape, and subdivisions of this marine basin, its relation to the Atlantic Ocean as also to the Red and Black Seas; the prevailing mountainous relief of Mediterranean lands, highly articulated coasts, peninsulas, islands, and continental hinterlands, rivers and river valleys; rainfall, temperatures, and winds; and finally, the effect of these various geographic conditions upon ancient agriculture, stock raising, forestry, industry, navigation, trade, and colonization, besides several other aspects of the economic, social, and political life in this region.

Daily, except Saturday, at 11.

MISS SEMPLE

SS5. The Geographical Changes Resulting from the World War. This course has been planned to cover systematically the changes in political boundaries in Europe, Asia, and Africa which have been wrought by the World War and by the peace treaties which brought it to a close. It will include a study of the geography and ethnography of Central and Eastern Europe as a basis for an understanding of the comparative assets and liabilities of the new nations which have been carved from the former empires of Russia, Austria-Hungary, and Germany. The disposition of the former German colonies in Africa and other parts of the world will be treated, and special attention will be given to their economic

and strategic value to their new owners. The course will be concluded with a brief study of the geographic reasons underlying the desires of the European powers for spheres of influence in Asia.

Daily, except Saturday, at 9.

MRS. THOMAS

SS6. The Teaching of Geography. This course will survey briefly the evolution of pedagogical method in geography teaching in Europe and America in the past forty years, and will develop in detail the newer methods which are being advanced today. Among the detailed subjects for study will be the following: natural regions as a basis for geography, human geography, the application of the problem and project methods of study to geography, the use of maps and pictures in geography, practical map exercises for students, the relation of memorization and drill to thought-provoking interpretation, the socialization of the geography lesson, and the effective use of the textbook.

Daily, except Saturday, at 10. MR. ATWOOD AND MRS. THOMAS

SS7. The Geography of South America. This course will emphasize the physical setting of the South American continent. The place of South America in relation to North America and the rest of the world will be shown. The general relation to the climatic zones, and a résumé of the larger topographic features will be followed by a more detailed study of the continent, in which the division into natural regions will form the basis of study. In each region the reaction of the inhabitants to the physical environment and the interplay of influences leading to the conditions of the present day will be discussed. There will be a summary of the economic resources of each region, and the manner in which they have been utilized. The effect of the war on the several countries will be considered, and the course will be concluded with a few glances into the future. Comparison with familiar points in the United States will be made frequently throughout.

Daily, except Saturday, at 12.

MR. JAMES

SS8. Meteorology. Daily observation, interpretation, and prediction of local weather. Physical properties of the atmosphere. The elements, temperature, pressure, winds, and moisture of the atmosphere, and their interrelations in various types of weather. How to read and use the weather map. The present status of weather forecasting. Frost, storm, and flood warnings;

the work of the United States Weather Bureau. The weather factor in agriculture, commerce, aeronautics, and public health.

Daily, except Saturday, at 8.

MR. BROOKS

SS9. *Climates of the World.* Although this course deals primarily with climates and how they affect man and his means of livelihood, its first part necessarily comprises general climatology, i. e., the climatic elements and their combination into such types as marine, continental, and mountain climate. The climates of the world are studied in a comparative way, especially to make manifest the similar human responses to similar climates in widely separated parts of the world, and local peculiarities and effects. Changes of climate in geological and historical time, and their importance in man's development and migrations are discussed.

Daily, except Saturday, at 10.

MR. BROOKS

HISTORY

*SS1. *Recent International Relations of the United States.* The course will present a survey of recent events and tendencies in the foreign relations of the United States. The reversal of attitude towards other important powers, from the Civil War to the opening of the World War, will be explained: the strong friendliness for Germany changing to dislike and fear by 1913; the hostile feeling towards France gradually turning to the former traditional sympathy; the open antagonism towards Great Britain becoming a warm friendship during the Spanish War; and the paternal fondness for Japan being replaced by the growing suspicion developed since the Russo-Japanese War. Other topics will include the expansion of the sovereignty and power of the United States both in the Caribbean and the Pacific Ocean; the increasing participation of the United States in the international politics of the Far East, and its growingly important part in world affairs since the Spanish War. The latter part of the course will deal with the diplomatic history of the United States during and since the World War; it will present a survey of the Treaty of Versailles, and the effect of the treaty provisions in actual operation; existing economic and political conditions in Europe; and the organization and results of the League of Nations. The differing

view-points regarding the European situation will be presented, and the notable books on the Treaty and its aftermath will be discussed and criticized.

Daily, except Saturday, at 10.

MR. BLAKESLEE

*SS2. Latin America. The course will give a survey of the civilization of the Latin American countries and of their relations to the United States. The lectures will point out the contrasts in the development of the United States and of Latin America, and the essential similarities and differences between their present systems of government, education, and social organization. They will sketch the striking features of Latin American life,—in the university, in the great capitals, in the Indian village, and in the homes on the estancias; they will describe the rapid economic development,—railroad building, the beginnings of large-scale manufacturing, and the unprecedented increase of trade and commerce with the United States. Diplomatic relations and present problems will be emphasized: the Monroe Doctrine; Pan-Americanism; the Panama Canal; the pending treaty with Colombia; the Mexican problem; the American administration of Haiti, Santo Domingo, and the Virgin Islands; the effects of the World War upon the various Latin American republics, and their present attitude towards world organization and the League of Nations. The lectures will be based in part upon material secured during a trip throughout South America shortly before the World War.

Daily, except Saturday, at 11.

MR. BLAKESLEE

*SS3. Recent Tendencies in the Teaching and Interpretation of History. This course will trace the rise of the newer conceptions of the nature and purpose of history and will indicate the relation of these developments to the study and teaching of history. The development of historical writing will be briefly traced, with the double purpose of indicating the chief sources for each period and of illustrating present-day historical problems by comparison and contrast. Among the special problems which will be considered are: (1) the relation of the progress in natural science and archeology to history; (2) the altered perspective of historical development; (3) the newer historical chronology, the continuity and periodizing of history; (4) the expansion of the scope of history; (5) the various interpretations of historical material; (6) the chief causes of bias in historical writing; (7) the relation of

history to the social sciences. While the course will be eminently concrete and practical and designed to aid teachers of history, special reading-assignments will enable the student to pursue technical work in historiography.

Daily, except Saturday, at 8.

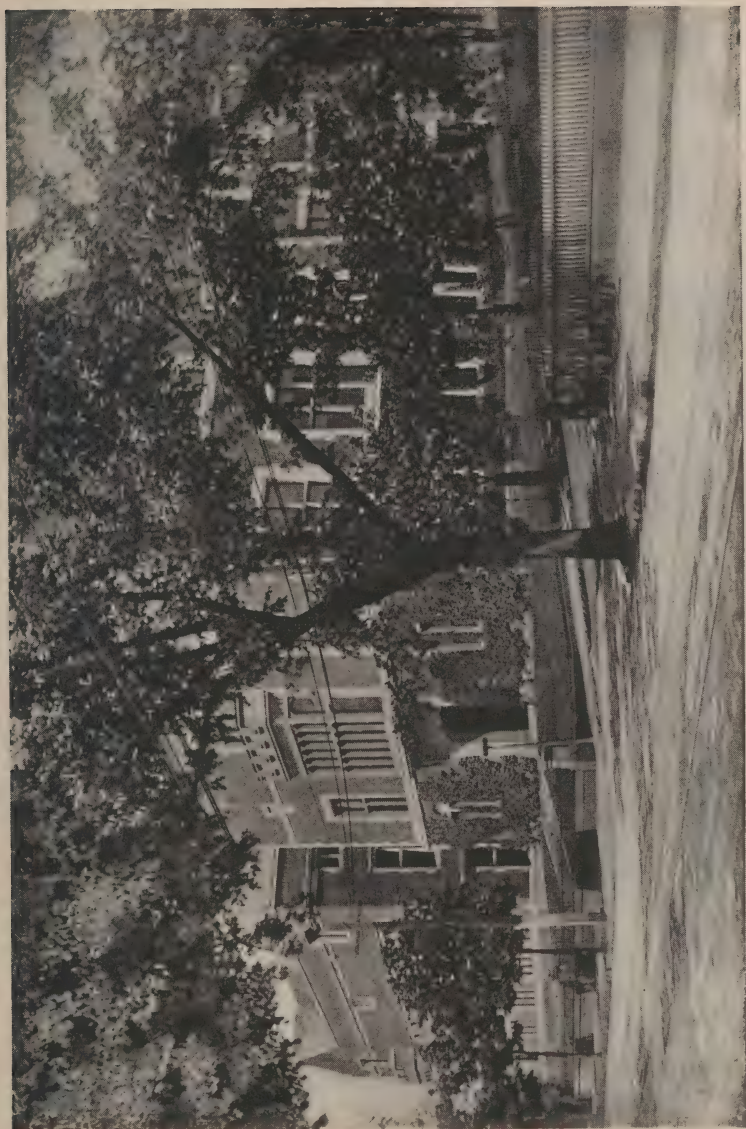
MR. BARNES

*SS4. The Newer Synthesis of Modern History. This course will survey the chief phases of the development of modern society since 1500. Instead of the conventional organization of material around such movements as the Renaissance, Reformation, dynastic wars, French Revolution and Napoleonic wars, Franco-Prussian war and the development of the rival alliances, the aim will be to present a synthesis of those forces and movements which have produced present-day civilization. The chief topics which will be considered are: (1) the expansion of Europe, the Commercial Revolution and its effect upon European society and politics; (2) the Industrial Revolution and the development of modern applied science; (3) the growth of democracy, nationalism, and imperialism; (4) modern capitalism and the rise of social reform programs and movements. The course will be designed to aid the teacher to interpret the modern history of England and the United States as well as of continental Europe.

Daily, except Saturday, at 9.

MR. BARNES

SS5. The Teaching of Community Civics. The field of this course will include in part a consideration of (1) the aims and the content of the civics course, especially in the light of our own recent experiences and the results of civics instruction in other lands, and the place of civics in the larger field of education for citizenship; (2) the psychological, social, economic, and administrative factors governing the location of and emphasis upon civics in the curriculum; and (3) a rather full discussion of methods, including such topics as the relative stress to be placed upon instruction and training, socialization in its several forms, the problem or project method and correlation with other subjects and activities in school, home, and the general community. In connection with methods the psychological basis for civics instruction as shown in recent results in genetic and experimental psychology and recent experiments in progressive schools will be given detailed consideration. Special attention will be given to recent



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THE MODEL PRIVATE LIBRARY

publications by the Federal Bureau of Education and the several State Departments of Education.

Daily, except Saturday, at 12.

MR. COE

PSYCHOLOGY

SS1. Educational Psychology. The Psychology of Learning will be the chief topic dealt with in the lectures in this course. Introductory to this will be discussions of the bearing of the reflexes, particularly the conditioned reflexes, on the work of the schoolroom; the role played by the significant instincts in education and the relation of results of recent studies of human nature to the socialized recitation, supervised study, flexible promotion, the project method and other present-day suggestions for improvement in school work. Other subjects treated will be the facts and laws of individual differences and their relation to heredity and environment, the rate and conditions of learning school and other tasks; the conditions of accurate observation and report; the recent studies of the relative value of studies in the curriculum; and a brief discussion of the relations of psychology to the common and high school branches. A previous training in psychology will not be presupposed. The lectures will be accompanied by numerous charts, lantern slides, and demonstration and practice experiments. Credit for $1\frac{1}{2}$ or 3 semester hours.

Daily, except Saturday, at 9.

MR. PORTER

*SS2. Mental and Educational Measurements. The first lectures in this course will deal with the history and development of mental tests and measurements and their relation to the work of the teacher, business manager, and social worker. Succeeding topics will be: the method and nature of the various kinds of tests, individual and group; their reliability and limitations; their bearing on grading and school marks, on promotion and on comparisons of different school systems and parts of the same school system; discussion of, and practice with, the more simple of the statistical methods used in working up the results of tests. The discussions of measurements will include a consideration of the use and results of the best tests and scales of reading, arithmetic, drawing, English, handwriting; the advantages of these modern tests and scales in making school surveys as well as a discussion of what are their limitations. Demonstration tests and measurements by

members of the class on each other and on children and subjects from the outside. Results of mental tests in school, college, and industry obtained over a period of years will be used as illustrative material in this course. Credit for $1\frac{1}{2}$ or 3 semester hours.

Daily, except Saturday, at 11.

MR. PORTER

EDUCATION

Two courses are here offered under the general title Pupil Participation in the Activities of the Elementary School. Taken together they will cover the project method of teaching both in its general implications and in the details of its use in the elementary grades. Each course, however, will be a unit in itself, and either may be taken separately.

SS1. A general study of the following: educational and social principles underlying the project method, the school as an outlet and guide for initiative and cooperative effort on the part of children, the adjustment of pupil participation to the requirements of the curriculum, the adaptation of classroom organization and equipment to the need of wider activity for pupils, and the larger field which the socialized school opens up to the teacher. The course will be conducted through lectures, reports on required readings covering the literature of the subject, and class discussion. Designed for teachers and supervisors of the elementary grades and for superintendents desiring to study the project method.

Daily, except Saturday, at 11.

MISS FRAZEE

SS2. This course will undertake to assist teachers in clarifying the special problems which they meet in their classroom leadership of children and in working toward a solution of their problems along lines of pupil participation in the school's activities. To this end the class will be organized in groups, each student choosing the group with which he wishes to work and each group undertaking a specific problem of its own selection. While it is impossible to forecast exactly these problem centers, students will have the opportunity to select their method in the primary, intermediate, or grammar school field and to choose within that field the subjects of special interest, such as reading, arithmetic, English composition, dramatization, education for citizenship, history, health, the school program, classroom organization and equip-

ment. A project room will be maintained in which a collection of completed projects will be available for study. Required readings will cover specific aspects of project teaching. The course is designed for teachers and supervisors of elementary grades.

Daily, except Saturday, at 12.

MISS FRAZEE

ENGLISH

SS1. Advanced Composition. A course in the study of the shorter literary forms now popular: modern verse, the short story, and the one-act play. Opportunity for original composition in these will be afforded. Critical papers will be required as well, and there will be frequent discussion of composition from the pedagogical viewpoint.

Daily, except Saturday, at 9.

MR. DODD

*SS2. Biography and Letters. This is a course in the study of the biography, autobiography, and correspondence of noted writers, especially of the Victorian era, beginning however with the Diary of Madam D'Arblay and concluding with the Letters of Henry James. The course is graduate in nature but open to undergraduates of approved scholarship in English.

Daily, except Saturday, at 10.

MR. DODD

FRENCH

SS1. Elementary French. Grammar, pronunciation, and oral work.

Daily, except Saturday, at 11.

MR. MÉTIVIER

SS2. Reading of French Prose. The object of the course is to develop the power of rapid and accurate reading of modern French. Special attention will be paid to the acquisition of a working vocabulary.

Daily, except Saturday, at 9.

MR. MÉTIVIER

NOTE. The right is reserved of withdrawing either of the above courses if elected by less than ten students.

SPANISH

SS1. For Beginners. Elementary work in reading and writing Spanish, accompanied by pronunciation drill and other oral exercises.

Daily, except Saturday, at 8.

MR. DEXTER

SS2. Rapid Reading Course. The material selected will depend upon the preparation and special interests of the class. Various methods of reading will be demonstrated,—intensive, cursory, translation, reading for substance.

Daily, except Saturday, at 9.

MR. DEXTER

NOTE. The right is reserved of withdrawing either of the above courses if elected by less than ten students.

GERMAN

SS2. Grammar Review and Reading of German Prose. This course is designed to meet the needs of students who have some knowledge of German and who wish to increase their ability to read with accuracy and ease. The reading will be accompanied by a systematic review of the essentials of grammar, with much oral and some written practice. The works read will depend on the ability and needs of the members of the class. The right is reserved of withdrawing this course if elected by less than ten students.

Daily, except Saturday, at 10.

MR. RANDOLPH



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Clark University Bulletin

Catalogue Number



Worcester, Massachusetts
May, 1922

Clark University Bulletin

NUMBER 13

MAY, 1922

Catalogue Number 1922-23
with
Announcements for 1922-23

The Catalogue is a record for the current academic year, 1921-22. Such announcements for the year 1922-23 as can be made at the time of publication are included.

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HISTORICAL NOTE

Clark University owes its existence to the interest in higher education of Jonas Gilman Clark, who was born at Hubbardston, Worcester County, Massachusetts, February 1, 1815. Successful in commercial life and keenly conscious of the meagerness of his own early educational opportunities, he devoted his later years to the establishment and nurture of the institution which bears his name. In this he was ably assisted by his wife, Susan W. Clark, and by a group of prominent citizens of Worcester. Mr. Clark died at Worcester on May 23, 1900.

The charter of the University was granted by the General Court of Massachusetts in 1887. The Graduate School, with Granville Stanley Hall as president, received its first students in 1889. Special provision was made in Mr. Clark's will for the establishment of a collegiate Undergraduate School with its own president but under the same general control as the Graduate School. Carroll Davidson Wright, then United States Commissioner of Labor, was chosen president of the Undergraduate School and students were first received in October 1902. After the death of President Wright in 1909, Edmund Clark Sanford, then Professor of Psychology in the Graduate School, was chosen as his successor.

In June 1920, following the resignation of President Hall after thirty-two years of service in the Graduate School and of President Sanford of the College, the Trustees announced the election of Wallace Walter Atwood to the presidency of both the Graduate and the Undergraduate Schools of the University.

During the academic year 1920-21 the two faculties continued their separate organizations while plans for unification were being worked out. These plans, approved by the Board of Trustees, went into effect in 1921-22 and provided for the fusion of the two faculties into a single body having immediate supervision over all matters pertaining to the general educational work of the University. All matters pertaining exclusively to the work of the Graduate School are under the direction of the Graduate Board. The Collegiate Board exercises a somewhat more limited authority over the College.

With the reorganization of the institution accomplished, it was possible to combine the libraries so that all students of the insti-

tution could enjoy the somewhat unusual opportunities offered in the main Library Building. The number of courses available for undergraduate students was increased and a special group of courses, open to upperclassmen in the Undergraduate School and to graduate students was instituted. The undergraduate student is thus led in his senior year into the atmosphere and methods of graduate work. In the spring of 1922 by action of the Faculty, the requirements for an A.B. degree were increased from one hundred and eight hours to one hundred and twenty hours, thus making the requirements for the Clark degree equivalent to those in the leading institutions of this country.

In the graduate work of the University, increased opportunities for conducting research work have been provided, and every encouragement is given to those who show promise of scholarly productivity.

With the reorganization of the University, provision was made for the establishment of a Graduate School of Geography, and in the fall of 1921 work in that School was begun. Plans for the development of the School of Geography involve the organization of a complete staff of specialists in the various fields of geographical research, the training of those who wish to enter Government service or the commercial world as expert geographers, and the preparation of those who wish to enter upon professional work as geographers in educational institutions or in the supervision of the teaching of Geography in the public-school systems. With the development of a special geographical library and of map collections, the University should become a center for authors who are preparing geographical material for publication. The development of the School of Geography should lead to the greater expansion and growth of the Departments of History and International Relations, of Economics, and of Political and Social Science. These fields of study are so intimately related that they form a group of departments in which many graduate students may wish to take their special training for professional duties.

The Summer School, opened in the summer of 1921, had an attendance of nearly two hundred students, and will be conducted again during the summer of 1922. Through the work of the Summer School, the University is offering its facilities for study to a large group of students who would not otherwise be benefited by the Clark endowments and is assisting in the training of expert teachers and in the promotion of additional research work.

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CALENDAR

1921

SEPT. 21	Wednesday	Academic year began
OCT. 12	Wednesday	Columbus Day
Nov. 24	Thursday }	Thanksgiving Recess
Nov. 26	Saturday }	
DEC. 24	Saturday }	
DEC. 31	Saturday }	Christmas Recess

1922

FEB. 1	Wednesday	Founder's Day*
FEB. 6	Monday	Second semester began
FEB. 22	Wednesday	Washington's Birthday
APR. 3	Monday }	Spring Recess
APR. 8	Saturday }	
APR. 19	Wednesday	Patriots' Day
MAY 30	Tuesday	Memorial Day
JUNE 12	Monday	Commencement Day
JULY 10	Monday }	Summer School
AUG. 18	Friday }	

SEPT. 20	Wednesday	Academic year begins
OCT. 12	Thursday	Columbus Day
Nov. 30	Thursday }	Thanksgiving Recess
DEC. 2	Saturday }	
DEC. 23	Saturday }	
1923		Christmas Recess

JAN. 2	Tuesday }	Founder's Day*
FEB. 1	Thursday	
FEB. 5	Monday	
FEB. 22	Thursday	Second semester begins
APR. 2	Monday }	Washington's Birthday
APR. 7	Saturday }	
APR. 19	Thursday	Spring Recess
MAY 30	Wednesday	Patriots' Day
JUNE 11	Monday	Memorial Day
		Commencement Day

*Not a holiday.

BOARD OF TRUSTEES

A. GEORGE BULLOCK (1901)	Worcester, Mass.
FRANCIS H. DEWEY (1904), Vice-President and Treasurer	Worcester, Mass.
HERBERT PARKER (1907)	South Lancaster, Mass.
ARTHUR P. RUGG (1910)	Worcester, Mass.
CHARLES H. THURBER (1913), President	Boston, Mass.
ALFRED AIKEN (1919)	Worcester, Mass.
GEORGE H. MIRICK (1920), Secretary	Worcester, Mass.
STEDMAN BUTTRICK (1920)	Concord, Mass.

FINANCE COMMITTEE

A. GEORGE BULLOCK
 FRANCIS H. DEWEY
 CHARLES H. THURBER

Final authority in all matters pertaining to the University is lodged in the Board of Trustees by charter granted by the General Court of the Commonwealth of Massachusetts.

ADMINISTRATIVE OFFICERS

President of the University	W. W. ATWOOD
Librarian and Curator of the Art Collection	LOUIS N. WILSON
Dean of the Collegiate Department	HOMER P. LITTLE
Director of the Summer School	C. B. RANDOLPH
Registrar	C. E. MELVILLE
Assistant to the President	W. A. AVERILL
Bursar	FLORENCE CHANDLER

UNIVERSITY STAFF

WALLACE WALTER ATWOOD, PH.D. 160 Woodland St.
President, and Professor of Physical and Regional
Geography, 1920-.

B.S., University of Chicago, 1897; Ph.D., 1903; Fellow, assistant, and
associate, 1899-1903; Instructor and Assistant Professor of Physiography
and General Geology, 1903-10; Associate Professor, 1910-13. Instructor
at Lewis Institute, Chicago, 1897-99. Instructor at Chicago Institute,
1900-01. Professor of Physiography, Harvard University, 1913-20. Geolo-
gist, U. S. Geological Survey; Fellow, American Academy of Arts and
Sciences; Member of the Geological Society of America and the Association
of American Geographers; President of the National Council of Geography
Teachers, 1920-21.

GRANVILLE STANLEY HALL, PH.D., LL.D. 156 Woodland St.
President of the University and Professor of Psychology,
1888-1920. Professor Emeritus, 1920-.

WILLIAM EDWARD STORY, PH.D.
Professor of Mathematics, 1889-1921. Professor
Emeritus.

*LOUIS N. WILSON, LITT.D. 11 Shirley St.
Librarian, 1889-. Custodian of the Art Collection.
Litt.D., Tufts College, 1905.

EDMUND CLARK SANFORD, PH.D., Sc.D., LL.D.
Professor of Psychology and Education.

Instructor in Psychology, 1889-92; Assistant Professor, 1892-1900;
Professor of Experimental and Comparative Psychology, 1900-09; Lec-
turer on College Administration, 1909-20; Professor of Psychology and
Education, 1920-.

Professor of Psychology, Clark College, 1903-07; President, 1909-20.
A.B., University of California, 1883; LL.D., 1912. Fellow in Psychology,
Johns Hopkins University, 1887; Ph.D., 1888; Instructor in Psychology,
1888; Fellow by Courtesy, 1920-21; Sc.D., Hobart College, 1909.

ARTHUR GORDON WEBSTER, PH.D., Sc.D., LL.D. 85 William St.
Professor of Physics. Director of Physical Laboratories.

Docent in Physics, 1890-92; Assistant Professor, 1892-1900; Professor,
1900-.

Professor of Physics, Clark College, 1902-07.

A.B., Harvard University, 1885; Instructor in Mathematics, 1885-86;
Parker Fellow, 1886-89. Student, Universities of Berlin, Paris, Stockholm,
1886-90; Ph.D., University of Berlin, 1890. Sc.D., Tufts College, 1905.

*Absent on leave 1921-22.

LL.D., Hobart College, 1908. Member of the National Academy of Sciences; Resident Fellow of the American Academy of Arts and Sciences; Member of the American Philosophical Society; Fellow of the American Institute of Electrical Engineers; Fellow of the Institute of Radio Engineers; Member of the American Society of Mechanical Engineers; Member of the Naval Consulting Board of the United States; Honorary Member of the Royal Institution of Great Britain.

HENRY TABER, PH.D. 2 Pleasant Pl.
Professor of Mathematics, 1903-21. Professor Emeritus.

WILLIAM HENRY BURNHAM, PH.D. 767 Main St.
Professor of Education and School Hygiene.

Docent in Pedagogy, 1890-92; Instructor, 1892-1900; Assistant Professor, 1900-06; Professor, 1906-.

A.B., Harvard University, 1882. Instructor in Wittenberg College, 1882-83. Instructor, State Normal School, Potsdam, N. Y., 1883-85. Fellow, Johns Hopkins University, 1885-86; Ph.D., 1888; Instructor in Psychology, 1888-89.

BENJAMIN SHORES MERIGOLD, PH.D. 166 Woodland St.
Professor of Chemistry.

Instructor in Chemistry, 1905-12, 1916-20; Professor, 1920-.

Assistant Professor of Chemistry, Clark College, 1903-08; Professor, 1908-20.

A.B., Harvard University, 1896; A.M., 1897; Ph.D., 1901; Assistant in Chemistry, 1896-1900. Instructor in Chemistry, Worcester Polytechnic Institute, 1900-03.

FRANK BLAIR WILLIAMS, PH.D. 2 Isabella St.
Professor of Mathematics.

Instructor in Mathematics, 1910-20; Professor, 1920-.

Assistant Professor of Mathematics, Collegiate Department, 1907-08; Professor, 1908-20.

C.E., University of Missouri, 1890; M.S., 1893; Teaching Fellow, University of Missouri, 1892-93. Engineering Work, United States Government Surveys, 1890-92 and 1894. United States Assistant Engineer, 1895-97. Scholar and Fellow in Mathematics, Clark University, 1897-1900; Ph.D. (Clark), 1900. Assistant Professor of Engineering, Union College, 1900-04; Professor of Engineering Mathematics, Union College, 1904-07.

GEORGE HUBBARD BLAKESLEE, PH.D. 21 Downing St.
Professor of History and International Relations.

Instructor in History, 1905-11; Professor, 1911-.

Instructor, Clark College, 1903-04; Assistant Professor, 1904-09; Professor, 1909-20.

A.B., Wesleyan University, 1893. Graduate Student, Harvard University, 1898-1901; Parker Fellow, 1901-02; A.M., 1900; Ph.D., 1903. Student, Johns Hopkins University, 1893-94; Universities of Berlin, Leipzig, and Oxford, 1901-03. Member of the Commission of Inquiry to prepare data for the United States Delegation to the Peace Conference, 1918-19. Member of the Council of the American Antiquarian Society. Member of Technical Staff, American Delegation, Conference on Limitation of Armament, Washington, 1921-22.

CHARLES BREWSTER RANDOLPH, PH.D. 10 Otsego Rd.
Professor of German, 1920-. Director of the Summer School.

Instructor in Greek, Clark College, 1903-04; Instructor in Greek and Latin, 1904-05; Assistant Professor, 1905-10; Professor of Latin, 1910-18; Professor of Latin and German, 1918-20.

A.B., Wabash College, 1896; Tutor in Classics, 1896-97. Graduate Student, Harvard University, 1901-03; A.M., 1902; Ph.D., 1905. Instructor in Greek and Latin, University of Illinois Preparatory School, 1897-1900. Student, University of Halle, 1900-01.

PHILIP HUDSON CHURCHMAN, PH.D. 20 Institute Rd.
Professor of Romance Languages, 1920-.

Assistant Professor of Romance Languages, Clark College, 1908-11; Professor, 1911-20.

A.B., Princeton University, 1896; A.M., 1903; Instructor in French, 1900-04. Master, Chestnut Hill Academy, Philadelphia, 1897-99. Student, Universities of Paris and Grenoble, 1899-1900. Student, University of Paris, 1903-04. Instructor in French and Spanish, United States Naval Academy, 1904-05. Graduate Student, Harvard University, 1905-08; Instructor in Romance Languages, 1906-08; Ph.D., 1908. Visiting Lecturer in the University of Chicago, Summer Quarter, 1912.

HAVEN DARLING BRACKETT, PH.D. 114 Woodland St.
Professor of the Greek and Latin Languages and Literatures, 1920-.

Instructor in Greek and Latin, Clark College, 1904-06; Assistant Professor, 1906-10; Assistant Professor of Greek, 1910-12; Professor of Greek, 1912-15; Professor of the Greek Language and Literature, 1915-20.

A.B., Amherst College, 1898. Master in Greek, Mercersburg Academy (Pennsylvania), 1898-99. Master in Greek, Lake Forest Academy (Illinois), 1899-1900. Sub-master, Boston Latin School, 1900-01. Graduate Student, Harvard University, 1901-04; Ph.D., 1904; Assistant in Ancient History, Harvard University, and Lecturer in Greek History, Radcliffe College, 1903-04.

*JAMES PERTICE PORTER, PH.D., Sc.D. 209 Lovell St.
Professor of Psychology. Collegiate Dean, 1909-22.

*Absent on leave October 1921 to March 1922. Resigned March 1922.

FRANK HAMILTON HANKINS, PH.D.

4 Cabot St.

Professor of Sociology.

Instructor in Economics and Sociology, 1906-07, 1908-15; Assistant Professor of Sociology, 1915-17; Professor, 1917-.

Instructor in Political and Social Science, Clark College, 1906-07; Assistant Professor, 1908-13; Professor, 1913-20.

A.B., Baker University, 1901. Superintendent of Schools, Waverly, Kan., 1901-03. Graduate Student, Columbia University, 1903-04; Scholar in Sociology, 1904-05; Fellow in Statistics, 1905-06; Graduate Student, 1907-08; Ph.D., 1908; Professor, Columbia University, Summer School, 1916 and 1918. Lecturer, école Libre des Sciences Politiques, Paris, 1921.

CHARLES A. KRAUS, PH.D.

11 Downing St.

Professor of Chemistry and Director of the Chemical Research Laboratories, 1914-.

B.S., University of Kansas, 1898. Fellow in Physics, Johns Hopkins University, 1899-1900. Instructor in Physics, University of California, 1901-04. Research Assistant, Massachusetts Institute of Technology, 1904-08; Ph.D., 1908; Research Associate, 1908-12; Assistant Professor of Physical Chemical Research, 1912-14.

LEROY ALLSTON AMES, A.M.

166 Woodland St.

Professor of English Literature, 1920-.

Instructor in English Literature, Clark College, 1908-10; Assistant Professor, 1910-15; Professor, 1915-20.

A.B., Harvard University, 1896; Assistant in English, 1899-1900; Graduate Student, 1899-1901; A.M., 1901. Teacher of English, Browne and Nichols School, Cambridge, Mass., 1896-99. Teacher of English, Worcester English High School, 1901-06; Noble and Greenough School, Boston, Mass., 1906-07.

EDWIN GARRIGUES BORING, PH.D.

11 Oberlin St.

Professor of Experimental Psychology, 1919-22. Director of the Laboratories of Experimental Psychology, 1921-22. Secretary of the Graduate Board.

M.E., Cornell University, 1908; A.M., 1912; Ph.D., 1914; Assistant in Psychology, 1911-13; Instructor, 1913-18. Research Assistant, Government Hospital for the Insane, 1912. Psychological Service, U. S. Army, 1918-19. Acting Professor of Psychology, Stanford University, summer 1921. Secretary of the American Psychological Association. Member, Division of Anthropology and Psychology, National Research Council.

HARRY ELMER BARNES, PH.D.

21 Shirley St.

Professor of the History of Thought and Culture.

Assistant Professor of History, 1918-19; Professor, 1920-.

Associate Professor of History, Clark College, 1918-19.

A.B., Syracuse University, 1913; A.M., 1914; Instructor in Historical Sociology, 1913-15. University Fellow in Historical Sociology, Columbia

University, 1915-16; William Bayard Cutting Traveling Fellow in the History of Thought and Culture, 1916-17; Lecturer in Modern European History, 1917-18; Ph.D., 1918. Research work at Harvard University, 1916-17. Historian to the New Jersey Prison Inquiry Commission, 1917, and to the Pennsylvania Penal Commission, 1918. Professor of History, New School for Social Research, 1919-20.

LORING HOLMES DODD, PH.D.

20 Sagamore Rd.

Professor of Rhetoric, 1920-.

Instructor in English, Clark College, 1910-13; Assistant Professor, 1913-16; Associate Professor, 1916-20.

A.B., Dartmouth College, 1900. A.M., Columbia University, 1901. Ph.D., Yale University, 1907. Instructor, Choate School, Wallingford, Conn., 1901-02. Instructor in English, St. Paul's School, Garden City, N. Y., 1907-10.

ROBERT HUTCHINS GODDARD, PH.D.

5 Bishop Av.

Professor of Physics. Associate Director of Physical Laboratories.

Student in Physics, 1908-09; Fellow, 1909-11; A.M., 1910; Ph.D., 1911; Honorary Fellow, 1911-12, 1914-15, 1919-20; Instructor in Physics, 1916-18; Professor and Associate Director of Physical Laboratories, 1920-.

Instructor in Physics, Clark College, 1914-15; Assistant Professor, 1915-19; Associate Professor, 1919-20.

B.S., Worcester Polytechnic Institute, 1908; Instructor in Physics, 1908-09. Research Instructor in Physics, Princeton University, 1912-13. Director of Research under U. S. Signal Corps, Worcester Polytechnic Institute and Mt. Wilson Observatory, 1918.

GEORGE FREDERIC WHITE, PH.D.

38 Somerset St.

Professor of Organic Chemistry.

Docent in Biological Chemistry, 1913-15; Instructor, 1915-20; Associate Professor of Organic Chemistry, 1920-21; Professor, 1921-.

Instructor in Organic Chemistry, Clark College, 1912-13; Assistant Professor, 1913-18; Associate Professor, 1918-20.

S.B., Massachusetts Institute of Technology, 1906; Assistant in Analytical and Organic Chemistry, 1906-08. Fellow, Johns Hopkins University, 1909-10; Ph.D., 1910. Associate Professor of Chemistry, Richmond College, 1910-12.

HOMER P. LITTLE, A.B., PH.D.

Professor of Geology, Collegiate Dean, 1922-.

A.B., Williams College, 1906. Ph.D., Johns Hopkins University, 1910; Fellow, 1910. Instructor and later Professor of Geology, Colby College, 1910-20. Lecturer in Geology, Bangor Theological Seminary, 1913, 1916, 1919. U. S. Geological Survey, 1907. Maryland Geological Survey, 1908-10. Instructor, Johns Hopkins Summer School, 1921. Executive Secretary, Division of Geology and Geography of the National Research Council, 1920-22.

CAREY EYSTER MELVILLE, A.B. ¹⁹²⁰ 16 Isabella St.
~~1892~~ Professor of Mathematics, Registrar. Secretary of the
 Graduate Board, 1922-.

Honorary Fellow in Mathematics, 1906-15; Associate Professor, 1920-~~22~~;
~~Professor, 1922-.~~

Assistant in Mathematics, Clark College, 1906-09; Instructor, 1909-10;
 Instructor in Mathematics and Physics, 1910-11; Assistant Professor,
 1911-14; Assistant Professor of Mathematics, 1914-18; Associate Professor,
 1918-20; Registrar, 1914-22.

A.B., Northwestern University, 1901. Instructor in Mathematics,
 Academy of Northwestern University, 1901-02. Graduate Student, Johns
 Hopkins University, 1902-03. Instructor in Mathematics, Case School of
 Applied Science, 1903-06.

CHARLES FRANKLIN BROOKS, PH.D. 209 Lovell St.
 Associate Professor of Meteorology and Climatology,
 1921-.

A.B., Harvard University, 1911; A.M., 1912, Ph.D., 1914. Research
 assistant, Blue Hill Observatory, 1912-13; Assistant in Meteorology and
 Physical Geography, 1913-14. Assistant and Collaborator in Farm Man-
 agement, United States Department of Agriculture, 1914-18. Instructor
 in Meteorology, United States Signal Service, 1918. Meteorologist, United
 States Weather Bureau, 1918-21. Secretary (1919-) and Treasurer (1921-),
 American Meteorological Society. Fellow, Royal Meteorological Society.
 Member, Association of American Geographers.

STANISLAUS THOMAS J. NOVAKOVSKY, PH.D. 720 Main St.
 Associate Professor of Economic Geography, 1922-.

Professorial Lecturer of Geography, Clark University, 1921-22.

Graduate, Kiev Commercial Institute, 1914; Master of Economic Science,
 1916; Assistant Professor of Geography in Kiev Commercial Institute and
 Kiev Geographical Institute, 1917. Ph.D., Yale University, 1921.

JAMES METIVIER, A.B. 2 Woodbine St.
 Assistant Professor of French, 1920-22.

Assistant Professor of French, Clark College, January, 1919-20.

A.B., Harvard University, 1877; Instructor in French, 1879-81. Teacher
 of French, Concord High School, 1878-79. Instructor, Noble's School,
 1881-83. Instructor in French and German, Browne and Nichols School,
 1883-1900. Instructor in French, Stone's School, 1900-02; Huntington
 School, 1902-17. Y. M. C. A. Work, Camp Gordon, Ga., and Kenilworth
 Hospital Camp, N. C., 1917-18.

KENNETH STILLMAN RICE, SC.M. 3 Hawthorn St.
 Assistant Professor of Biology.

Honorary Fellow in Biology, 1919-20; Assistant Professor, 1920-.

Assistant Professor of Biology, Clark College, 1919-20.

Ph.B., Brown University, 1913; Sc.M., 1915; Graduate Student in Physiology, 1915-17. Scientific Assistant in U. S. Bureau of Fisheries Laboratory, Woods Hole, Mass., Summers of 1915 and 1916. Instructor in Physiology, Medical School of the University of Georgia, 1917-18. Instructor in Biology, Tufts Pre-medical School, 1918-19.

HERMANN HILMER, PH.D. 166 Woodland St.
Assistant Professor of Economics, 1920-22.

A.B., University of Michigan, 1904. A.M., Columbia University, 1905. Assistant in German, University of Wisconsin, 1905-06. Student, University of Leipzig, 1906-07. Instructor in German, Leland Stanford, Jr., University, 1907-12; Ph.D., 1912; Assistant Professor, 1912-16. Student, University of Berlin, 1913-14. Assistant in Economics, Cornell University, 1917-18; Fellow in Economics and Finance, 1918; Instructor in Economics, 1918-20.

KIMBALL YOUNG, PH.D.
Assistant Professor of Psychology, 1922-.

Ph.D., Leland Stanford, Jr., University. Instructor in Psychology, University of Oregon, 1920.

VLADIMIR TRIPHON DIMITROFF, A.M.
Instructor in Biology, 1921-.

Ph.B., Brown University, 1920; A.M., 1921; Assistant in General Biology, 1918-19, 1920-21. Assistant in Laboratory and Clinic of Providence City Hospital, 1918-20. Inspector in Providence Mosquito Campaign, 1921.

PRESTON E. JAMES, A.M. 166 Woodland St.
Instructor in Geography, 1921-.

A.B., Harvard University, 1920; A.M., 1921; Assistant in Geography, 1919-20. Member, United States Geological Survey, 1920.

CARROLL CORNELIUS PRATT, PH.D. 70 Florence St.
Instructor in Experimental Psychology.

Assistant in Experimental Psychology, 1919-20; Instructor, January, 1921-22.

A.B., Clark College, 1915; Scholar in Psychology, Clark University, 1915-17; A.M., 1916; Ph.D., 1921. Radio Intelligence Service, United States Signal Corps, 1917-18. Student, University of Cambridge, 1919.

EARL G. MELLOR, A.B.
Instructor in Romance Languages, 1922-.

A.B., Clark University, 1918. Instructor, Blair Academy, 1918-20. Student, University of Paris, 1920.

- ERNEST RAYMOND WHITMAN 1 Webster St.
Director of Physical Education.
- JOSEPH DE PEROTT 5 Hawthorn St.
Lecturer in Mathematics. (Emeritus.)
- RAYMOND GARFIELD GETTELL, A.M.
Amherst College, Amherst, Mass.
Visiting Professor of International Relations,* 1921-22.
Professor of Political Science, Amherst College.
- ANDREW FISH, A.M. Millrace Drive, Eugene, Ore.
Lecturer in History,* 1921-22.
Assistant Professor of History, University of Oregon.
- A. A. ROBACK, PH.D. 17 Harvard St., Dorchester, Mass.
Lecturer in Applied Psychology, 1922 (February-June).
Instructor in Psychology, Harvard University.
- DOUGLAS CLAY RIDGLEY, A.B.
Lecturer in Geography, 1922-.
A.B., Indiana University. High School Instructor and Principal, Chicago Schools. Professor of Geography and Head of Department of Geography, Illinois State Normal University.
- W. A. AVERILL, A.B. 193 Lovell St.
Special Administrative Assistant to the President, 1921-.
A.B., University of Chicago, 1902; graduate student, Geology, 1902, 1903, 1905-06. Instructor in Physiography, 1902-05; University of Chicago High School, 1905-06. Graduate student, University of Illinois, 1906-07. Principal, Charleston High School, 1907-08. Carnegie Foundation Exchange Instructor to Germany, 1908-10. Student, University of Berlin, 1909-10. Educational staff, New York Bureau of Municipal Research (School Surveys: New York City, Rochester, Schenectady, N. Y.; St. Paul, Minn.; Reading, Pa.; Newark, N. J.), 1910-14. New York State Department of Education, 1914-18. United States Central Bureau of Planning and Statistics, Washington, D. C., Staff member, 1918-19. Special work in Educational Administration and Finance, 1920-21.
- FLORENCE CHANDLER 938 Main St.
Bursar.
- E. C. BELKNAP 9½ Hancock St.
Curator, Department of Chemistry.
- FREDERICK HERBERT BAKER, M.D. (Harvard) 4 Linden St.
Medical Director.
- J. EDWARD BOUVIER 22 Lenox St.
Musical Director.

*First semester, 1921-22.

RESEARCH ASSOCIATES

WALTER WILLIAM LUCASSE, PH.D. 23 Maywood St.
Research Associate in Chemistry.

A.B., Kalamazoo College, 1917. A.M., Clark University, 1920; Ph.D., 1921.

HENRY COLE PARKER, PH.D. 1016 Main St.
Research Associate in Chemistry.

B.S., Kalamazoo College, 1915. A.M., Clark University, 1916; Ph.D., 1920. National Research Council Fellow in Chemistry.

ASSISTANTS

GEORGE TASHAMKA DAVIS, A.B., Political and Social Science.

GEORGE FLETCHER DES AUTELS, B.S., Chemistry.

JOSEPH SIDNEY GOULD, A.B., Political and Social Science.

HENRY M. HALVERSON, PH.D., Experimental Psychology.

HOWARD HENRY HOUSE, B.P.E., Physical Education.

ARTHUR JULIUS NELSON, A.B., History and International Relations.

ISAAC RABINOVITZ, Physics.

HAROLD MANTON SMITH, A.B., Chemistry.

EVERETT VERNER STONEQUIST, Political and Social Science.

ALLEN BYRON STOWE, A.M., Graduate in Chemistry.

MILES ALBERT TINKER, A.B., Psychology.

EARLE FORRESTER WHYTE, M.A., Chemistry.

WALTER DAVID WOOD, A.B., Chemistry.

JOHN HENRY WUORINEN, A.B., History and International Relations.

APPOINTED IN JUNE, 1922

CHESTER A. SHIFLETT, A.B., Chemistry.

JOHN D. FORNEY, A.B., Chemistry.

CLIFFORD E. HORTON, Psychology.

CLIFFORD KIRKPATRICK, A.B., Sociology.

J. ALBERT IMLAH, A.B., History and International Relations.

The University

General Information

LOCATION

Clark University is located in Worcester, Massachusetts, an industrial and educational center with a population of nearly two hundred thousand. It is distant about forty miles from Boston and from Providence, and about two hundred miles from New York City.

Situated at the eastern border of the central Massachusetts upland at an altitude of nearly six hundred feet above sea level, excessive humidity is seldom experienced and the climate is bracing.

GROUNDS AND BUILDINGS

The University Campus is a tract of about eight acres bounded by Main, Woodland, Maywood, and Downing Streets, about a mile and a quarter from the City Hall. Here the principal buildings are located. Besides this tract, the institution owns the athletic grounds between Maywood and Beaver Streets, the land at the corner of Woodland and Charlotte Streets where the Dining Hall is located, and the Hadwen Arboretum, the bequest of Mr. O. B. Hadwen, a tract of about twenty acres situated on Lovell and May Streets.

The Main Building, completed in 1889, is a four story granite and brick building, 204 feet by 114 feet, of fire resisting construction, containing about ninety rooms. A gymnasium, 96 feet by 64 feet, with adjacent locker rooms and shower baths, is located on the ground floor. On the floor above are an assembly room seating about four hundred persons, administrative offices, study rooms, and class-rooms. The upper floors are used for class-rooms, laboratories, and private offices. An additional story over the central portion of the building is occupied by the Educational Museum.

The Science Building, completed in 1889, is constructed of brick with brick partitions throughout. It has the form of a letter L with each wing about 135 feet in length. The wing adjacent to Woodland Street, containing about twenty-eight rooms on three floors, is occupied by the Department of

Chemistry. The other wing, containing about twenty-two rooms on four floors, is occupied by the Department of Physics.

The Library Building, completed in 1903, is architecturally the most noteworthy of the University buildings. The design is a modern adaptation of the Gothic style. The exterior is of brick on a granite foundation. The interior is finished throughout in oak. The original building, facing Main Street and extending back along Downing Street, is 78 feet by 168 feet and three stories in height. It contains the Librarian's office, reading rooms, stack rooms, and the Art Gallery.

The New Wing of the Library, completed in 1910, is 56 feet wide and extends along Main Street for 111 feet. It is connected by corridors to the original building, which it matches in design. It contains, on the first floor, the undergraduate reading room, on the two upper floors, the office of the President of the University, other private offices, and the library and lecture rooms of the Graduate School of Geography.

The Dining Hall, at the corner of Woodland and Charlotte Streets, was completed in 1908. It is about 43 feet wide by 123 feet long, one story high, with a basement mostly above ground, and is built of brick. The equipment is modern in every respect, and ample for the accommodation of about two hundred regular boarders.

A dwelling house for members of the faculty and graduate students has been provided by the purchase during the past year of the dwelling at number 166 Woodland Street. By acquiring this property the University has rounded out and greatly improved the character of its holdings on Woodland Street opposite the Main Building.

The University also owns the residences on Woodland Street occupied by President Atwood and by Ex-president Hall, and several other dwellings, including two at the Hadwen Arboretum.

The Main Building, the Science Building, the Library, the President's house, and the faculty house are heated from a central heating plant, located in the Main Building.

ORGANIZATION

The University includes:

The Undergraduate School (popularly known as Clark College), offering a general collegiate course leading to the A.B. degree.

The Graduate School, offering advanced instruction leading to the A.M. and Ph.D. degrees.

The Graduate School of Geography, offering special training leading to the higher degrees in Geography and related subjects.

The Summer School, offering both undergraduate and graduate instruction.

The Library, with its separate endowment, offering unusual opportunities for study and research.

The courses of study offered are distributed among fourteen departments:

1. Ancient Languages and Literatures
2. Biology
3. Chemistry
4. Education and School Hygiene
5. English Language and Literature
6. Geography
7. Geology
8. German Language and Literature
9. History and International Relations
10. Mathematics
11. Physics
12. Political and Social Science
13. Psychology
14. Romance Languages and Literatures

Announcements of the different schools and of the different departments will be found, each under its own heading, in the following pages.

Until 1920, the graduate and undergraduate faculties were organized independently. During the academic year 1920-21 the University was reorganized according to the following plan:

THE BOARD OF TRUSTEES is the ultimate authority in all matters pertaining to the University.

THE PRESIDENT is the executive officer of the institution.

THE FACULTY consists of the President, the Librarian, and all members of the staff giving regular courses of instruction. It has immediate supervision over the general educational work of the University and is responsible for the nomination to the Board of Trustees of candidates for baccalaureate degrees and for honorary degrees.

THE SENATE is an advisory body consisting of not less than six members of the Faculty, appointed by the President.

THE GRADUATE BOARD consists of the President and representatives of the departments offering advanced graduate instruction. It has general control of the work of the Graduate School and is responsible for the nomination to the Board of Trustees of candidates for the degrees of Master of Arts and Doctor of Philosophy.

THE COLLEGIATE BOARD consists of the President, the Collegiate Dean, the Collegiate Registrar, and six other members of the Faculty appointed by the President. It has immediate supervision over the work of the Undergraduate School subject to the direction of the Faculty and recommends to the Faculty candidates for the baccalaureate degrees.

Each DEPARTMENT is organized in a manner agreed upon by the members of the Department with the approval of the President. The Departments are responsible for the instruction offered in their respective fields and may make recommendations to the President in regard to appointments and promotions.

THE ACADEMIC YEAR

The University year begins on a Wednesday in the latter part of September, and Commencement Day is near the middle of June. The first semester ends on the Saturday before the twentieth Monday, and the second semester begins on the twentieth Monday of the academic year. There are three recesses during the college year: Thanksgiving Day and the two days following; eight to ten days including Christmas and New Year's Days; and the week beginning with the first Monday in April. University exercises are suspended also on Columbus Day, Washington's Birthday, Patriots' Day, and Memorial Day, and during some of the morning hours on Founder's Day, in order to permit students to attend the commemoration exercises.

The Summer School begins on the Monday following July 4, and continues in session for six weeks.

Students are expected to be present on the first day of each term and to continue in attendance from day to day to the end of the term.

REGISTRATION

Registration of programs of study takes place on the opening day of the academic year, and, when there is any change of program for the second semester, on the first day of the semester.

Registration for the Summer School takes place on the first day of the session.

TUITION AND FEES

The tuition in the Undergraduate and Graduate Schools is \$100 per year, payable in two equal installments. These installments are due at the beginning of each semester. If the tuition is not paid within ten days after it is due the enrollment of the student lapses. A student whose enrollment has lapsed for non-payment of tuition may be re-enrolled, with permission of the proper administrative officer, on payment of the overdue tuition with an additional fee of \$2.

Tuition in the Summer School is \$20 for a single course, \$30 for two courses, and \$40 for three courses. Tuition may be paid at any time before the opening of the Summer School, and must be paid by noon of the first Saturday of the term.

A matriculation fee of \$5 will be required of all students entering Clark University after January 1, 1922. This is paid but once, and will permit a student to return successive years, or after a period of absence, without any further charge for matriculation. This fee will apply also to students who register for the Summer School after the above date.

Laboratory fees are charged according to the following schedule:

\$2.50 each semester for undergraduate laboratory courses in Biology, Physics, Psychology, and courses 11 and 12 in Chemistry.

\$5 each semester for other undergraduate laboratory courses in Chemistry.

A deposit of \$10 for each course, to cover breakage, is required of students taking undergraduate laboratory work in Chemistry. Any balance remaining at the end of the year will be returned on application; and if the deposit is not sufficient to cover the breakage, any excess will be collected by the Bursar.

Fees are paid in full.

Laboratory fees and deposits for breakage are due at the time of registration for the courses.

Diploma fees are charged according to the following schedule:

\$5 for the Bachelor of Arts diploma.

\$10 for the Master of Arts diploma.

\$25 for the Doctor of Philosophy diploma.

These fees are due before the delivery of the diploma.

EXPENSES

Board at the Dining Hall is furnished at cost and the charge has varied from year to year. During the current year the charge has been \$6.50 per week.

Undergraduates who do not live in their own homes are required to board at the Dining Hall.

The University has dormitory accommodations for a small number of male graduate students only. Lodging can be secured within convenient distances at a cost for furnished room as low as \$2.50 per week.

The cost of books varies greatly with the programs of study and no definite estimate of this item of expense can be given. The University maintains a book store which is operated without profit in order to reduce the cost of text-books and supplies.

FELLOWSHIPS, SCHOLARSHIPS, AND STUDENT AID

UNIVERSITY FELLOWSHIPS for graduate students are provided annually from the income of the George F. Hoar Fund of one hundred thousand dollars, the gift of Andrew Carnegie. A senior Fellow may receive two hundred dollars, a junior Fellow, one hundred dollars, with remission of tuition in each case. The number of Fellowships of each class and their distribution among the departments of instruction vary from year to year. These Fellowships are intended for candidates for the doctor's degree who are devoting their entire time to University work. The senior Fellowship will ordinarily be awarded only to persons who, in the opinion of the department with which the candidate is doing his major work, gives promise of obtaining the degree after a year of work; and the junior Fellowship is similarly reserved for candidates who give promise of obtaining the degree after two years of work.

Application blanks may be obtained from the Secretary of the Graduate Board, and applications should be filed with the Secretary by April first for consideration by the Board at its April meeting. The Board may, however, consider applications made at other times.

THE AMERICAN ANTIQUARIAN SOCIETY FELLOWSHIP in American History, having a value of four hundred dollars in addition to the remission of tuition, has been established by members of the American Antiquarian Society. This Fellowship will be awarded to a student whose *major* is in American History.

Fellows must reside in Worcester during the entire academic year and devote themselves to study under the direction of their instructors. They must co-operate in promoting harmony, order, and all the aims of the University, and must not teach elsewhere.

Being intended primarily as honors, Fellowships are awarded without reference to pecuniary needs. Those Fellows able and desiring to do so may relinquish the emolument and retain the title.

UNIVERSITY GRADUATE SCHOLARSHIPS, yielding tuition, are awarded to students of ability in their first year of graduate study upon recommendation of the major department in which they will work and approval by the Graduate Board. Application blanks may be obtained from the Secretary of the Graduate Board and will be considered by the Board at its April meeting and at such other times as it may elect.

UNDERGRADUATE SCHOLARSHIPS are awarded to undergraduates primarily upon the basis of pecuniary need, with due regard to character and ability. Fifteen of these Scholarships are available at present. Five Major Scholarships, yielding tuition for one year, and five Minor Scholarships, yielding tuition for one semester, are awarded at the beginning of the academic year to students in regular standing who have completed at least one third of the work required for the Bachelor's degree. The remaining five Minor Scholarships will be open at the beginning of the second semester to members of the freshman class in regular standing.

THE LIVERMORE AND AMBULANCE SCHOLARSHIP was endowed by citizens of Worcester in honor of Charles Randall Livermore, Clark College, '17, the first Clark man to fall in battle, and of his companions in the Clark Unit of Ambulance Drivers. A scholarship of fifty dollars or more is offered from the income of the fund,

to be awarded on the basis of academic success, character, and usefulness to the College. The scholarship is open to students in regular standing in any class of the College who are residents of Worcester County, but preference will be given, other things being equal, to members of the Clark Unit still studying as undergraduates.

THE B'NAI BRITH SCHOLARSHIP is a fund of \$1,350 provided by the Order of B'nai Brith, primarily but not exclusively for the aid of Jewish students.

Applications for undergraduate scholarships should be filed with the Collegiate Registrar not less than ten days before the beginning of the semester. Applicants for Major Scholarships must have attained in their previous work at Clark an average grade entitling them to rank in the highest third of their respective classes, and applicants for Minor Scholarships must have attained a rank above the middle of the class. Awards are made by the Collegiate Board.

The University expressly reserves the right to award less than the full number of scholarships of either sort in any year if less than the full number of worthy candidates apply or if for any other reason it may seem advisable to do so.

A CITIZEN'S FUND has been established by a citizen of Worcester in the sum of five thousand dollars, the income of which is to be used for the aid of "some one or more worthy native born citizens of the City of Worcester who may desire to avail themselves of the advantages of the institution." The benefits of this fund are available to graduate students only.

THE JOHN WHITE FIELD FUND, the income of which is "to provide for the minor needs of a Scholar or Fellow," has been established by Mrs. Eliza W. Field. The fund amounts to five hundred dollars.

The following regulations apply to the award of the income of the Field Fund:

1. Regard is had to the intellectual ability of the candidate as well as to need of pecuniary assistance.
2. Only candidates who have spent three months in graduate work at the University are considered.
3. The head of each department will consider and report to the Faculty desirable cases in his department.
4. Applications are received not later than December 15,

and the awards made as soon as possible after the Christmas recess.

THE ELIZA D. DODGE FUND is a sum of one thousand dollars the income only of which is to be expended to aid graduate students of limited means engaged in research work.

THE HENRY A. WILLIS FUND ~~of \$500~~ is available for students coming from Fitchburg and vicinity, but in the absence of a suitable recipient from this community other disposal may be made.

*the income from a fund of \$5000 is see below **

Aid which is given in the form of scholarships and from the various Funds of the college is not regarded as a loan. If, however, those who avail themselves of such aid are able to return the amounts in later years, credit will be given on the books of the University Treasurer, and the sums, whatever they may be, will be put into the Funds of the University for the use of other students in like circumstances.

THE CLARK COLLEGE LOAN FUND. Grants from this Fund are made on recommendation of the President or Collegiate Dean in amounts determined by the need of the applicant but seldom in excess of one hundred dollars per year to any single applicant. The loans are covered by notes payable at a fixed date after graduation and bear interest after maturity at the rate of six per cent per annum. In order to be eligible for a grant from this Fund the student's academic record must give him rank above the lowest third of his class. Applications may be made at any time.

THE ESTABROOK LOAN FUND. This is a revolving Fund created by the generosity of the late Arthur F. Estabrook of the Board of Trustees and now amounting to a total of about four thousand two hundred and fifty dollars, most of the amount being at present in the hands of earlier borrowers. The Fund is administered by the Collegiate Dean, and grants from the money available are made at any time without the requirement of the standing in scholarship applying to the College Loan Fund. The notes given to cover the grants are payable after graduation and without interest, but it is expected that loans from this Fund will be repaid as promptly as possible.

The following members of the alumni have subscribed \$475, which will be available for a loan to students: H. M. Smith, C. B. L. Kelly, L. Kelly Foster, Isadore Lubin.

* This is a fund of \$5000⁰⁰ given to provide a perpetual annual scholarship.

HEALTH AND PHYSICAL TRAINING

The Medical Director, Doctor Frederick H. Baker, exercises general supervision over matters of health and hygiene in the University. For undergraduates a thorough medical examination is required at the beginning and end of each year. Three hours per week of Physical Training are required of all who are not excused for adequate reasons. Medical examinations and Physical Training are optional with graduate students.

The Medical Director is available during the academic year for conferences and medical advice. It is intended that his services shall be primarily of a preventive nature. The University does not conduct an infirmary and does not undertake to care for cases of illness requiring medical attention or hospital accommodations, although it will coöperate in every possible way in meeting such emergencies.

The Director of Physical Education has supervision over all required Physical Training and other athletic activities. In the matter of intercollegiate contests he is assisted by the Committee on Athletics of the Faculty.

The University athletic grounds lie on the opposite side of Maywood Street from the campus. The tennis courts here are among the best in the city; there is a fine cinder running track about an eighth of a mile in length, and ample provision has been made for the practice of all sorts of track athletics.

The gymnasium is located on the ground floor of the Main Building. Individual steel lockers and an ample number of shower baths are provided.

PUBLIC LECTURES

Several series of public lectures, by competent speakers both from within and without the University, are given during the year. The weekly General Assembly of the students is frequently addressed by invited speakers from outside. On these occasions members of the University hear many men and women of national and international reputation.

PUBLICATIONS

A REGISTER AND OFFICIAL ANNOUNCEMENT of the Graduate School was issued each year from 1889 to 1920.

A CATALOGUE containing the announcements and record of the Undergraduate School was issued each year from 1902 to 1920. From 1906 to 1920, this constituted the January number of the CLARK COLLEGE RECORD, an official bulletin published quarterly.

THE CLARK UNIVERSITY BULLETIN, beginning in December 1920, replaced the two publications named above. In addition to the annual Catalogue of the University there will be issued as numbers of the Bulletin, announcements of the different schools and of separate departments, announcements of special events or undertakings, and general news numbers for the purpose of keeping the alumni and other friends in touch with the University and with each other.

The Bulletin will be published in October, December, February, and May, and at other times as occasion arises.

Other publications of the University include:

THE ANNUAL REPORT OF THE PRESIDENT TO THE BOARD OF TRUSTEES in the years 1890, 1891, 1893, 1902, and 1916.

THE SUMMER SCHOOL PROGRAM for the nine years ending in 1903.

CLARK UNIVERSITY, 1889-1899. DECENNIAL CELEBRATION. 8 x 11 inches, 566 pages. Price, \$5. Contains the lectures delivered by Professors Picard, Boltzmann, Ramon y Cajal, Mosso, and Forel at the Decennial Celebration, July 1899; also reports by the heads of departments on their aims and ideals, with a list of past and present members of the University and the titles of their published papers.

PROCEEDINGS OF THE CHILD CONFERENCE FOR RESEARCH AND WELFARE. Conferences held at Clark University in the summers of 1909 and 1910. Vol. 1, 1909, 257 pages, contains 48 papers on problems relating to child welfare. Vol. 2, 1910, 287 pages, contains 34 papers, on similar subjects. The papers in Vol. 1 were reprinted from the Pedagogical Seminary for September and December 1909, but those in Vol. 2, with one exception, have not been printed elsewhere. Price, \$2 per volume in paper, \$2.50 in cloth.

LECTURES AND ADDRESSES DELIVERED BEFORE THE DEPARTMENTS OF PSYCHOLOGY AND PEDAGOGY IN CELEBRATION OF THE TWENTIETH ANNIVERSARY OF THE OPENING OF CLARK UNIVERSITY. 175+80 pages. Price, \$2.

LECTURES DELIVERED AT THE CELEBRATION OF THE TWEN-

TIETH ANNIVERSARY OF THE FOUNDATION OF CLARK UNIVERSITY UNDER THE AUSPICES OF THE DEPARTMENT OF PHYSICS. 161 pages. Price, \$2.

CHEMICAL ADDRESSES DELIVERED AT THE SECOND DECENNIAL CELEBRATION OF CLARK UNIVERSITY, IN SEPTEMBER 1909. 192 pages. Price, \$2.

PUBLICATIONS OF THE CLARK UNIVERSITY LIBRARY, edited by the Librarian. Occasional papers and addresses. Now in the sixth volume.

THE JOURNAL OF INTERNATIONAL RELATIONS. This publication was begun in July 1910 as The Journal of Race Development, and continued under that title until 1919. Until 1920 it was unofficially connected with the Department of History and International Relations. It is now an official University publication. It is edited by Professor George H. Blakeslee with the cooperation of a board of contributing editors. It offers itself as a forum for the discussion of international problems, and aims to present the essential facts in the most important international issues, as well as critical reviews of the new volumes in its field. Published quarterly, each number containing about 125 pages. Price, \$3 per volume; 75 cents per number.

JOURNAL OF APPLIED PSYCHOLOGY. This journal was published quarterly, beginning March 1917. Until 1920 it was unofficially connected with the Department of Psychology. From 1920 to 1922 it was an official University publication, edited by Professor James P. Porter. It is now published at the University of Indiana. Each volume of four issues contains about 400 pages. Price, \$4 per volume; single copies, \$1.25.

The following publications were, until 1920, unofficially connected with departments of the University:

THE AMERICAN JOURNAL OF PSYCHOLOGY. 1887-1920.

THE PEDAGOGICAL SEMINARY. 1891-1920.

The Undergraduate School (Clark College)

ADMINISTRATION

COLLEGIATE BOARD

THE PRESIDENT OF THE UNIVERSITY

THE COLLEGIATE DEAN

THE REGISTRAR

PROFESSOR AMES

PROFESSOR BRACKETT

PROFESSOR CHURCHMAN

PROFESSOR GODDARD

PROFESSOR MERIGOLD

ASSISTANT PROFESSOR RICE

STANDING COMMITTEES

ON ADMISSIONS: The President, The Dean, Messrs. Goddard, Brackett, Melville, Randolph.

ON STUDENTS' STANDING: The President, The Dean, The Registrar, and the Instructors and Advisers of the Students under Consideration.

ON CURRICULUM: The Dean, Messrs. Churchman, Dodd, Merigold, Randolph, Williams.

ON STUDENTS' FINANCES: Messrs. Randolph, Brackett, Williams.

ON SUMMER STUDY: The President, The Dean, Messrs. Ames, Melville, Merigold.

ON COÖPERATION WITH STUDENTS: Messrs. Blakeslee, Rice, Whitman, Hilmer.

ON PUBLIC LECTURES: Messrs. Ames, Blakeslee, Brackett.

ON SOCIAL AFFAIRS AND PUBLIC OCCASIONS: The Dean, Messrs. Goddard, Barnes.

ON FINE ARTS: Messrs. Brackett, Ames, Dodd.

ON THE DINING HALL: The President, The Dean.

ON ATHLETICS: Messrs. Whitman, Brackett, Blakeslee, Williams.

ON STUDENT GOVERNMENT: The Dean, Messrs. Merigold, Randolph.

THE COLLEGE

The unique features of the College are its flexible system of admissions, the adjustment of its requirements for the bachelor's degree to different types of preparation for college work, and the emphasis upon a three year course leading to the degree of Bachelor of Arts for well-prepared students who are willing and able to maintain a high standard of scholarship and to devote themselves zealously to their studies.

The three year course was adopted as the normal one for the baccalaureate degree when the College was established in 1902. This innovation was in part due to the emphasis placed upon a three year course in the will of the founder, and in part the result of a conviction that properly prepared students could, under favorable conditions, secure in three years a training in no substantial degree inferior to that ordinarily obtained in a four year college course. Increasing pressure, on the one hand, for the admission of high school graduates who could not qualify for the three year course and, on the other hand, for a larger development of extra-curricular activities, including athletics, has led to a modification of this plan. Beginning with the class entering in September 1922, a regular four year course leading to the Bachelor of Arts degree will be offered to those who meet the normal requirement for admission. The three year course will, as is indicated above, continue to be open to qualified students and to be emphasized in accordance with the traditional policy of the College and the intent of its founder.

The College has a competent faculty, large in proportion to the number of students, and is well equipped for the work which it undertakes. It especially commends itself to earnest young men who wish to economize either in time or money. In accordance with the expressed wish of the founder the tuition and other expenses have been kept as small as possible. A general and well-balanced undergraduate curriculum leading to the degree of Bachelor of Arts is offered. Distinctively vocational or professional work is not offered. Certain departments, particularly the Department of Chemistry, have, however, been able to give a training which has enabled students to take up professional employment immediately after graduation.

A complete statement in regard to fees and expenses, scholarships, and general conditions of work will be found on pages 21-26.

ADMISSION

Two classes of students are admitted to the College:

1. Regular students, candidates for the Bachelor of Arts degree, who must have completed a high school course or its equivalent.

2. Special students, who in general are somewhat older than the candidates for the Bachelor's degree and who are qualified to study, with profit, certain subjects included in the curriculum.

It has been the practice to regard every admission as an "admission on trial" to the actual work of the College. A student whose record fails to meet the expectations implied by his admission may be required to withdraw at any time. No applicant will be admitted with conditions to be made up after entrance.

Applications for admission should be made as early as is practicable, on blanks supplied by the College. Applicants should present themselves in person, if possible, to a member of the Committee on Admissions. The official transcript of the applicant's preparatory school record and the certificate of character which is required should preferably be sent directly to the College by the school official who signs them. Blank forms for this purpose will be furnished on request.

ADMISSION TO THE FRESHMAN CLASS

The requirements for admission as a regular student are:

1. Graduation from an approved New England high school or institution of like standards with a course representing not less than fifteen acceptable units of school work, or the substantial equivalent of such preparation.

NOTE 1. No preparatory school will be regarded as approved which requires for graduation less than four full years of study after the usual grammar school course.

NOTE 2. The standard unit of quantity in preparation is a quarter of a year's work, the amount of work usually covered in a subject taken four or five times a week through a year of thirty-eight to forty weeks with recitation periods of not less than forty minutes.

2. Creditable standing in the preparatory school. This is generally interpreted to mean that at least two thirds of the units presented must have received a grade which the school gives for work which it is willing to "certify" for admission to

college. Applicants who have made an exceptionally creditable record in their preparatory school courses may be admitted with only fourteen units.

3. A reasonable distribution of the units offered among the subjects included in the high school curriculum and a reasonable amount of continuity. A single year's work in a foreign language is usually not regarded as an acceptable unit in meeting requirements for admission.

Applicants whose preparation has been irregular or not up to the standard specified above will be accepted, if at all, only after a thorough consideration of each individual case by the Committee on Admissions, and after the satisfactory meeting of such additional requirements as the Committee may impose. These additional requirements may take the form of examinations or the completion of additional preparatory work. Satisfactory grades in the "comprehensive examinations" given by the College Entrance Examination Board are generally acceptable in lieu of the required grades in the high school record.

ADMISSION TO ADVANCED STANDING

A student who wishes to enter the College after previous study at another institution of the same grade is required to submit a letter of honorable dismissal, a complete transcript of his record at the last institution attended and such other information as the Committee on Admissions may request. If he is admitted he will be provisionally assigned to the freshman, sophomore, junior, or senior class and will be permitted to register for such courses as he is prepared to undertake. He will not be given a final class rating or a definite amount of credit for work done elsewhere until he has been in residence for at least one semester. After satisfying this requirement as to residence he will be given credit for the work done at any other institution to an amount depending in each case upon the time spent upon it, the grade received, and upon the record made here. Such credit is granted by vote of the Collegiate Board upon the recommendation of the Registrar.

The Bachelor's degree will not be conferred upon a student who has not spent at least a year in residence here, and usually not unless the time spent in residence includes the two semesters immediately preceding the granting of the degree.

ADMISSION OF SPECIAL STUDENTS

Mature persons who desire to pursue particular studies, but who on account of age, or for other reasons, are not candidates for admission as regular students, may be admitted as special students. They must pay the full tuition fee, and must conform to the general regulations of the University, but are not candidates for a degree.

FACULTY ADVISERS

When a student is accepted by the Committee on Admissions he is assigned to a member of the Faculty who will act as his adviser. The adviser will assist the student in making up his program of studies for registration and will be ready at all times to afford him help and counsel, either in regard to problems of the student's college life or other matters. The student should consult with his adviser as soon as possible in order to outline his program of studies before the opening of the college year. In all cases of action directly affecting a student the adviser is his representative before the Faculty and will present the student's views and desires.

REGISTRATION

Registration of the program of studies is required on the first day of the academic year, and in case of any change of program for the second semester, on the first day of the semester. Due notice is given by the Registrar in advance of these dates in regard to the detailed procedure of registration.

During the first two weeks of any semester changes of courses may be made for sufficient reason with the written approval of the student's adviser and the instructors concerned. After the first two weeks of any semester no changes may be made except such as are authorized by special vote of the Faculty or of the Collegiate Board.

The election of a *major* and a *minor* is required as a part of the registration at the beginning of a student's second year in college. This election when once recorded may be changed only at the beginning or end of a semester, and then only with the approval of the Dean. Although the *major* and the *minor* are not officially regarded as fixed until the student's second year in college he should plan his course from the beginning as definitely as possible with his

probable choice in view. This is desirable in order that he may make sure of securing the required number of hours credit in the *major* without undue concentration on that single subject in the last year of his course.

STUDENT PROGRAMS

Regular students normally carry programs which yield a credit of fifteen or sixteen semester hours for each semester, in addition to the required work in Physical Training. These programs may include lectures, recitations, or work in laboratories. In general it is expected that all courses will require two hours of preparation for each lecture or recitation. Three hours are assumed for each laboratory period which is counted as the equivalent of an hour of recitation and its two hours of preparation. A student carrying the regular program should expect his college work to require from forty-five to fifty hours of his time per week, in addition to the work in Physical Training.

Candidates for the Bachelor's degree in less than four years will generally carry programs of from eighteen to twenty hours per week and should expect to spend practically their entire time on their college work.

THE CURRICULUM

The curriculum is arranged upon a plan which permits considerable freedom of adjustment to individual differences of interest. Each student's program of studies contains two principal subjects (a *major* and a *minor*) together with required courses in English and certain subjects chosen in accordance with rules intended to insure a reasonable distribution of work among the various departments. A large part of each program is made up of courses chosen without restriction.

A *major* consists of at least twenty-four semester hours and a *minor* of at least eighteen semester hours made up of such courses as are specified in the announcements of the various departments.

In order to facilitate the statement of requirements, the departments of instruction are grouped in three divisions:

DIVISION A

Biology, Chemistry, Geology, Mathematics, Physics.

DIVISION B

Education and School Hygiene, Geography, History and International Relations, Political and Social Science, Psychology.

DIVISION C

Ancient Languages, English, German, Romance Languages.

A student may choose his *major* in any one of the thirteen departments and his *minor* in a related department. The choice of *major* and *minor* usually involves certain specific requirements in other subjects. For these and for statements as to what particular courses may be used for a *major* or a *minor* the announcements of the different departments should be consulted.

An undergraduate student may enter any course listed "primarily for undergraduates," for which, in the judgment of the instructor in charge, he may be prepared. Seniors are admitted, at the discretion of the instructor in charge, to courses listed "for advanced undergraduates and graduate students"; juniors may be admitted to these courses only by special vote of the Collegiate Board. Undergraduates are not admitted to courses primarily for graduate students except in rare cases, and then only by special vote of the Collegiate Board.

PHYSICAL TRAINING

Physical Training, three hours per week, is required of every student in the College, unless excused for adequate reasons.

The purpose of the requirement is to insure the healthy muscular exercise which every student needs from day to day, and to bring about such a general physical condition as will lay the foundation of future health and make of the body a ready servant of the mind rather than a drag and hindrance to it. With these ends in view some portion of the time is given to setting-up exercises and other forms of gymnastic drill; but a still larger portion to games and sports so arranged that all can take part in them, or to group contests in which the participants are so graded that each will compete with others of about his own ability. It is intended that the element of free and hearty physical play shall be a characteristic feature of the course as a whole, but a definite series of progressive exercises will also be given, and there will be opportunity for those who desire to do so to become skillful in

dancing, boxing, wrestling, fencing, club-swinging, and gymnastic feats. From the point of view of the Faculty the course in Physical Training is a required course in the full sense of the word; attendance is recorded and marks are assigned; and slack work in it will have the same consequences as deficiencies in other parts of the curriculum.

The hours at which the work in Physical Training is given are set at times which avoid conflict with recitation hours.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

1. A minimum period of study in residence of three academic years.
2. A minimum of one hundred and eight* semester hours of credit with an average grade of B—,† or better, including:

- a. A *major* of not less than twenty-four semester hours.
- b. A *minor* of not less than eighteen semester hours.
- c. *Mathematics*, six semester hours. Required of all who have not presented two units of Algebra or Geometry, or both, for admission.

This may not be counted in partial fulfillment of the requirement in *Science* (h).

- d. *Greek*, or *Latin*, or *Mathematics*, or *advanced modern foreign language*, six semester hours.

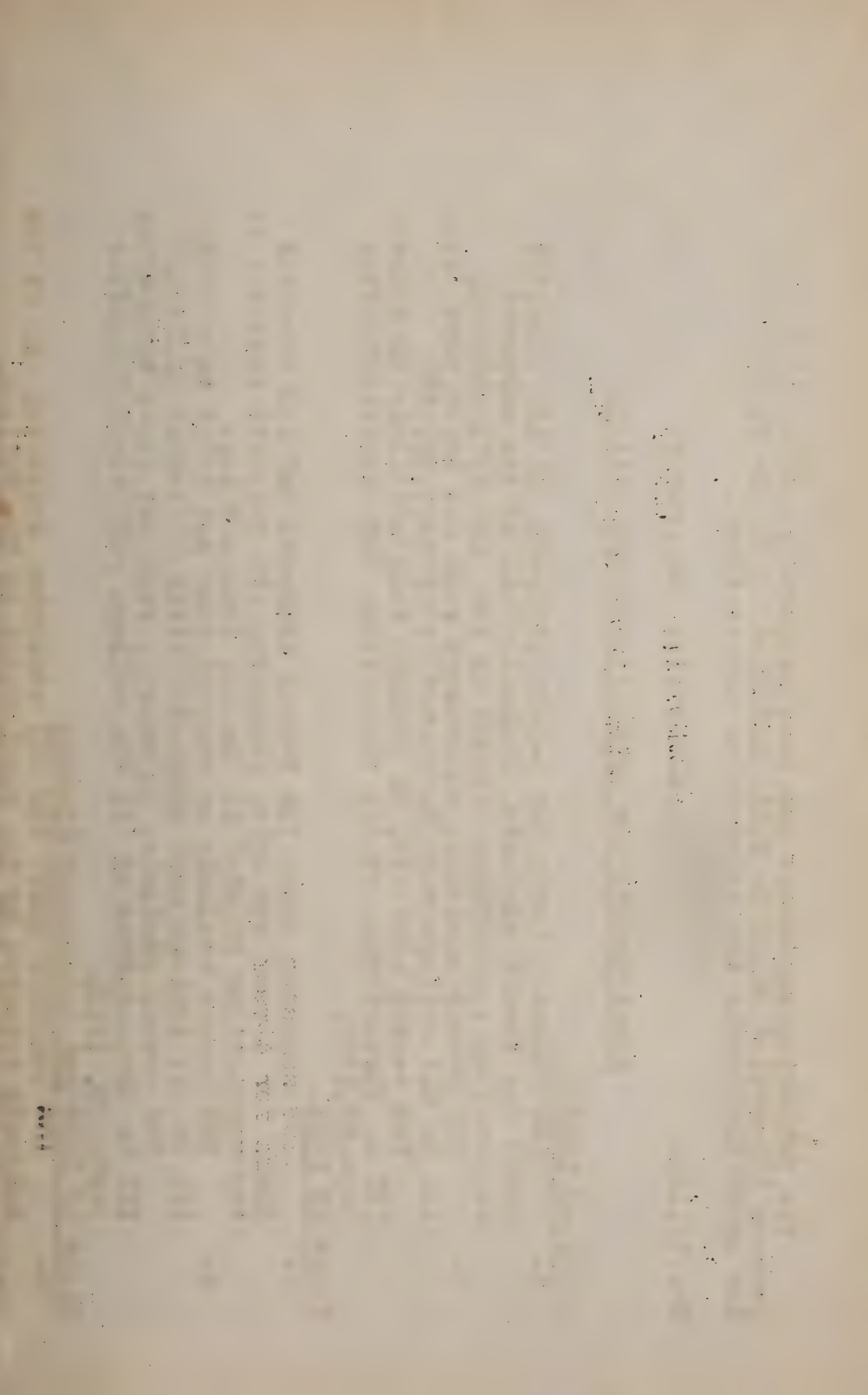
For a student whose *major* lies in Division A, this credit must be in Mathematics, taken in the first year of his course.

For a student whose *major* lies in Division C, this credit must be in Greek or Latin. A student who has offered two units of Greek or Latin for admission is excused from the requirement in these languages. If this requirement is met in college, the course must be taken in the first year.

For a student whose *major* lies in Division B, this credit may be in Greek, Latin, Mathematics, or *modern foreign language*, subject to the approval of the Department in which the *major* lies. If the option of a *modern foreign*

*Beginning with the class entering in September 1922, one hundred and twenty semester hours will be required.

†Beginning with the academic year 1922-23, a new system of grading will be used.



The following statement has been prepared in order that all persons interested might be fully informed as to the requirements for graduation under the regulations now in force.

Dec. 15, 1922

C. E. Melville, Registrar

Requirements for Graduation-Clark College

Class of 1923.

- a. 108 semester hours for 3-year students and 120 semester hours for 4-year students, including all of the subjects required by regulations printed in the May 1921 catalog.
- b. For 3-year students, an average rank not lower than Group III in all college work completed after Sept. 20, 1922.
For 4-year students, an average rank not lower than Group III in three-fifths of all the college work completed after Sept. 20, 1922.

Class of 1924.

- a. 108 semester hours for 3-year students and 120 semester hours for 4-year students, including all subjects required by the regulations printed in the May 1922 catalog.
- b. For 3-year students an average rank not lower than Group III in all college work completed after September 20, 1922.
For 4-year students, an average rank not lower than Group III in three-fifths of all the college work completed after Sept. 20, 1922.

Class of 1925 and Succeeding Classes

- a. ~~120~~ 108 semester hours for all students, including all of the subjects required by the regulations of the College.
- b. An average rank not lower than Group III in three-fifths of the 120 hours required for graduation.

Notes:

- a. A student on the 3-year basis will, as a rule, carry a program of 18 or more hours per week and is required to maintain a rank in Group II or better in two-thirds of his work. Additional credit is given for high rank on the basis of one-half semester hour for each rank in Group I, and one-fourth semester hour for each rank in Group II in a three-hour course. A rank in Group IV cancels to the extent of one-half hour any extra credit resulting from ranks in Groups I or II in the same semester. A program of 18 hours a week carried through 3 years will under the above arrangements yield a total credit of 117 semester hours if a rank in Group II is secured in all courses, leaving 3 hours additional to be provided at some time during the 3 years. A student who is allowed to carry 18 hours throughout his course will normally have at the end of 3 years not less than 114 semester hours credit.
- b. In order to remain "in good standing" a student must secure a rank in Group III or better in at least 2 courses.
- c. Under the new plan of reporting students' standings the significant fact is the relative rank of a student in each individual course. In all the regulations based upon the new system:

A rank in Group I means "among the first 5 in an average group of 100".

A rank in Group II means "among the first 25 in an average group of 100".

A rank in Group III means "below the best 25 and above the lowest 25 in an average group of 100".

A rank in Group IV means "among the lowest 25 in an average group of 100".

language is chosen, a course of a grade of advancement not below that of the third year college courses* must be offered.

Work taken in fulfillment of this requirement may also be counted toward the fulfillment of the requirement in *Science* (h) or in *Foreign Language* (f).

- e. *English*, twelve semester hours, including English 11 required in the first year, and six semester hours additional required in the first or second year of the course. English 16, Advanced Composition, is required in the second year of all students who fail to obtain a grade of B+† or better in English 11.
- f. *Foreign Language*, twenty-four semester hours, including Foreign Language offered for admission. Foreign Language offered for admission will be credited on the basis of six semester hours for two units of preparatory work in one language, twelve semester hours for three units in one language, and eighteen semester hours for four units in one language.

The total requirement must be divided between two languages with not less than six semester hours in each.

- g. *Physical Training*, three hours per week, through the course.
- h. *Science*, twelve semester hours normally, which may be increased to eighteen semester hours or diminished to six semester hours, according to the amount of Science included in the preparatory course.

Six semester hours of this requirement must be in some one laboratory course in Biology, Chemistry or Physics, and not more than six semester hours may be in a single subject.

Except for the restrictions just stated, any courses in Division A, and also courses in Experimental Psychology and laboratory courses in Geography may be chosen in fulfillment of this requirement.

- i. *Division B*, twelve semester hours normally, which may be increased to eighteen semester hours or diminished to six semester hours, according to the subjects included in the preparatory course.

*French 112, Scientific French is not accepted in fulfillment of this requirement.

†Beginning with the academic year 1922-23, a new system of grading will be used.

This requirement must be divided between at least two departments with not less than six semester hours in each.

The students who satisfy all of the foregoing requirements will be recommended for the Bachelor's degree unless in the judgment of the Faculty there is cause for withholding this recommendation.

A student who has failed to attain the required average, B—,* at the end of his course, will not be recommended for the degree until he presents additional credit to an amount depending upon his average grade, according to the following table.

Average	Additional Hours	Average	Additional Hours
81.6	3	79.6	18
81.2	6	79.2	21
80.8	9	78.8	24
80.4	12	78.4	27
80	15	78 (C+)	30

In order to equalize the requirements under the regulations permitting a student to receive the Bachelor's degree at the end of three years with a minimum of one hundred and eight semester hours, one who carries less than the regular program of eighteen hours per week while on this basis must present two semester hours additional credit for each semester completed with the smaller program, without regard to the average grade obtained.

Not more than twelve semester hours of work of D grade may be included in the total required for the Bachelor's degree, irrespective of the student's average standing.

HONORS

"First Honors" and "Second Honors" are awarded annually to those members of each class who have, in the judgment of the Faculty, distinguished themselves by their scholarship during the year.

The Bachelor's degree is awarded "With Honor," "With High Honor," and "With Highest Honor" to those members of each graduating class who have made the most creditable records.

In 1914 the Clark Scholarship Society was organized. The society is similar in aims to the Society of Phi Beta Kappa. Its object is, "to maintain a high and broad conception of scholarship;

*Beginning with the academic year 1922-23, a new system of grading will be used.

to encourage devotion to scholarship, so conceived; to promote a close relation for mutual benefit between the undergraduate members and the faculty members of the Society." Membership in the Society is open to members of the faculty. New student members are normally elected at the end of each year from among the men of high standing in the junior class. The Faculty makes nominations and the undergraduate members of the Society elect from the men so nominated. Additional nominations are made at the middle and end of the senior year.

GRADES*

At the end of each semester the instructors report to the Registrar on the work of the students in their courses, using the descriptive terms *excellent, good, fair, poor, and failed*, indicated respectively by the symbols A+, A, and A—; B+, B, and B—; C+, C, and C—; D+, D, and D—; and E. These semester grades constitute the record upon which various "honors" and scholarships are awarded, and upon which the number of semester hours required for graduation depends. Work reported as "failed" gives no credit towards graduation. Twice during each semester, at intervals of about nine weeks, reports of progress characterizing the work of the students for the preceding period are also made in the same terms.

The standard grade is B—. A student whose average grade for the course is B—, or better, is graduated with the minimum number of semester hours required by his classification under the headings, *three year students, three and one half year students, or four year students*. A student whose average grade for the course is below B—, is required to complete an additional number of semester hours beyond the minimum number required by his classification, as explained on page 38.

A student whose average grade falls at any time below C+ will be regarded as so far below standard as to make him liable to exclusion from the college.

The use of numerical equivalents for the grades described above in the statement of the requirements for graduation, does not indicate that instructors are expected to grade on a numerical basis. These equivalents are used merely as a convenient means of com-

*Beginning with the academic year 1922-23, a new system of grading will be used.

paring students' records one with another in administering the rules of the faculty. The figures used for this purpose are:

Grade	Numerical Equivalent	Grade	Numerical Equivalent
A+	102	C+	78
A	98	C	74
A—	94	C—	70
B+	90	D+	66
B	86	D	62
B—	82	D—	58
		E	54

It is obvious that the average for the course cannot be calculated earlier than the end of the course. At the end of each year a written statement is made by the Registrar to each student who is deficient, showing the amount of extra work for which he will be held if his average remains the same at the end of his course.

A student thus notified may provide additional credit by work in an approved summer school, or may, at his own risk, trust to his ability to escape the requirement by securing higher grades in the remainder of his course. A student whose deficiency is large may find it advisable to readjust his plans to provide for a longer period of residence with a reduced weekly program. The maximum credit which can ordinarily be secured by summer study is six semester hours.

STUDENT LIFE

It has always been the policy of the University to give to its students the greatest possible individual liberty of action and to adopt few rules of conduct.

It is assumed that each student will conform to the recognized standards of morality, good order, and gentlemanly conduct, that he will not absent himself unnecessarily from University exercises at which he is due, and that he will give his serious and constant attention to his work as a student.

While encouraging the fullest possible measure of student self-government, the College recognizes the fact that individuals and groups among the undergraduates require a reasonable amount of oversight in their various undertakings.

Undergraduate organizations are under such control as will insure proper caution and recognition of responsibility in business dealings.

The general supervision of intercollegiate athletics is committed to an Athletic Board consisting of the Director of Physical Training, and nine student members. The actions of this Board are subject to review and veto by the Committee on Athletics of the faculty.

Two formal dances, the junior-freshman "Prom" in the winter, and the "Senior Prom" at Commencement time, in addition to informal dances, "Bohemians," held about once in six weeks, give opportunity for relaxation and the meeting of students and faculty on a basis of general sociability. Additional opportunities of this sort are provided by the "College Suppers" held at the Dining Hall about once a month, and by various clubs such as the Science Club, the Wireless Club, the Psychology Club, etc., in which both students and faculty participate.

Much of the social life of the undergraduate students centers about the four fraternity houses.

Student activities include a Glee Club and Orchestra which give a series of concerts in Worcester and elsewhere during the winter; a Debating Society whose members have made an enviable record for the University in intercollegiate debates; the Gryphon, a senior honor society, and many other organizations.

On Sub-Freshman Day, in the spring, those who have some expectation of entering the College in September are guests of the University for the purpose of establishing mutual acquaintanceship.

THE CLARK COLLEGE MONTHLY is a magazine which was established in 1911 to provide a means of publication for the literary productions of members of the College and a forum for the expression of college sentiment, and to furnish its readers with the latest information about the life of the institution. The editorial and business management is in the hands of a student board.

The Dramatic Association is a very active student organization which presents a number of plays each year under the direction of Professor L. H. Dodd of the Department of English.

The Graduate School

ADMINISTRATION

GRADUATE BOARD

THE PRESIDENT OF THE UNIVERSITY

EDMUND CLARK SANFORD

ARTHUR GORDON WEBSTER

WILLIAM HENRY BURNHAM

GEORGE HUBBARD BLAKESLEE

CHARLES A. KRAUS

FRANK HAMILTON HANKINS

EDWIN GARRIGUES BORING, Secretary*

HARRY ELMER BARNES

GEORGE FREDERIC WHITE

STANDING COMMITTEE ON PROFICIENCY IN FOREIGN LANGUAGES

MESSRS. BURNHAM AND WEBSTER

GENERAL INFORMATION

The courses in the Graduate School are open to properly qualified persons, both men and women.

Instruction and opportunities for original research leading to the degrees of Master of Arts and Doctor of Philosophy are offered by the following departments:

Chemistry

Education and School Hygiene

Geography

Geology

History and International Relations

Mathematics

Physics

Political and Social Science

Psychology

The other departments offer courses of an advanced nature which, with the consent of the Graduate Board, may be included in the programs of graduate students, but are not prepared at present to offer complete programs leading to the higher degrees.

*Beginning June 1922, the Secretary of the Graduate Board is Professor C. E. Melville.

A complete statement regarding tuition and expenses, Fellowships and Scholarships, and general conditions of work will be found on pages 21-26.

ADMISSION

CANDIDATES FOR GRADUATE DEGREES

Only college graduates or those of equivalent attainments are admitted as candidates for degrees in the Graduate School.

No entrance examinations are required; but by testimonials, diplomas, personal interviews, or written specimens of work, the authorities must be satisfied that the applicants have scholarship enough to work to advantage, and zeal to devote themselves to their chosen field.

It is highly desirable that candidates should have a reading knowledge of French and German.

SPECIAL STUDENTS

In addition to those who are candidates for the advanced degrees, the Graduate School admits others desiring to undertake advanced study or original research, whose attainments are such as to qualify them for the work proposed. Such persons, provided they satisfy the departments concerned as to their training and competency in the subjects to which they wish to devote themselves, are not restricted in their choice and combination of studies. These students may, with the approval of the President, be received for less than an entire year.

HONORARY FELLOWS

Those who have already advanced to the Doctor's degree may be appointed Honorary Fellows and given all the privileges of the University. In past years many who have already taken this degree, either in this country or abroad, have found these appointments advantageous while waiting for collegiate and university appointments elsewhere.

LIBRARY FACILITIES

In addition to the library facilities provided by the University (see pages 63-65), students may avail themselves of the privileges of several other excellent libraries in the city. The Worcester Public Library contains some 237,000 volumes and makes accessible to the public about 600 newspapers and magazines. The

library of the American Antiquarian Society, housed in the national headquarters of the society in Worcester, contains about 136,000 volumes and some 202,000 pamphlets. The library of the Worcester District Medical Society is also at the disposal of members of the University.

THE DEGREE OF DOCTOR OF PHILOSOPHY

It is to the needs of candidates for this degree that the lectures, seminars, laboratories, collections of books, apparatus, etc., are especially shaped, and no pains will be spared to afford them every needed stimulus and opportunity. It is for them that the Fellowships are primarily intended.

At least one year, but in most cases three years, of graduate work are necessary for this degree. Candidates must have previously taken the degree of Bachelor of Arts or have had a substantial equivalent for the training implied by that degree.

For this degree one requirement is a dissertation upon an approved subject, to which it must be an original contribution of value. To this capital importance is attached.

Such formal or informal tests as the Graduate Board may determine shall mark the acceptance of each student or Fellow as a candidate for this degree.

An oral, but no written, examination is required upon at least one minor subject in addition to the major before an examining jury composed of at least four members, appointed by the President of the University and including the chief instructor under whose direction the dissertation has been prepared, other representatives of the department in which the candidate has done his major work, and a representative of the department in which the candidate has elected his minor subject. The President is also authorized to invite any person from within or without the University to be present and to ask questions. The jury through its clerk shall report the results of the examination to the Secretary of the Graduate Board. The Board will recommend satisfactory candidates for the degree.

RULES CONCERNING THE DEGREE OF DOCTOR OF PHILOSOPHY

I. *Residence.* No candidate shall receive the degree of Doctor of Philosophy without at least one academic year's previous residence.

2. *Subjects of Study.* The candidate shall select a major subject of study and, with the approval of the department of the major subject, at least one minor subject. His program of work in major and minor subjects as recommended by the major department concerned shall be submitted to the Graduate Board for approval in October of each year.

3. *Candidature for the Doctor's Degree.* Every applicant for the Doctor's degree shall fill out, before October first, the regular application blank provided at the office. This schedule shall be submitted to his major department, which shall satisfy itself in such manner as it may desire as to the fitness of the applicant.

4. When countersigned, this schedule shall be filed with the Secretary of the Graduate Board, and the applicant will be examined in French and German, or in French or German and some other language approved by the Graduate Board, by the standing committee for that purpose.

5. In case of a favorable report by this committee, the applicant shall be a regular candidate for the degree, provided the Graduate Board shall have already voted to admit him to candidacy.

6. Candidates complying with all preliminary conditions, including the language examinations, before November first will be allowed to proceed to the Doctor's examination at any time between May fifteenth following and the end of the academic year.

7. *The Doctor's Dissertation.* The dissertation must be presented to the instructor under whose direction it is written, and reported upon by him before the Doctor's examination. In every case the dissertation shall be laid before the jury of examination, at the time of examination, in form suitable for publication, although this provision shall not preclude the making of such minor changes later as the chief instructor may approve. This copy of the dissertation shall be deposited in the Library, not to be taken out until the final form is substituted.

8. The dissertation, or an abstract that has been approved by the chief instructor as embodying and emphasizing the essential original contribution to knowledge contained in the dissertation, shall be printed at the expense of the candidate, and one hundred copies deposited with the Librarian within one calendar

* Voted 24.13. 2/1/22

and's for this may be examined at any time prior to the next year in which the degree is to be taken and may be substituted for the degree if it is found to be of sufficient value.

year after the first of October following the examination. In the case of dissertations of unusual length, or containing expensive plates, the Graduate Board shall have power, at the request of the candidate, to reduce the number of presentation copies to fifty; and in unusual circumstances the Graduate Board may extend the time allowed for the printing of the dissertation.

9. The candidate shall, at least one week before the conferring of the degree, deposit with the Secretary of the Graduate Board the required number of printed copies of the dissertation or abstract, or, in lieu of the printed copies, a written acceptance of the dissertation or abstract for publication within the required time by a responsible editor or publisher; or he shall deposit with the Bursar the sum of seventy-five dollars or an acceptable bond for that amount. No officer of the University is eligible as surety on such a bond. This sum, or bond, shall be returned to the candidate upon the deposit of the printed copies; or, should the copies not be deposited within the required time, it, or such portion of it as is necessary, shall be used to print the dissertation or abstract, and the remainder returned to the candidate. In the case of long dissertations, when a deposit is made or a bond given to insure publication, the candidate shall also be required to deposit such an approved abstract, in duplicate, of the dissertation as may be printed with the amount of the deposit or bond.

10. A candidate, who has not presented the printed copies of the dissertation one week before the conferring of his degree, shall further be required to deposit with the original copy a duplicate copy of the dissertation. One copy of the dissertation shall be allowed to circulate from the Library under such conditions as the Librarian may deem advisable; the other copy shall not be withdrawn. Both copies may, however, be replaced by a printed copy if the dissertation is printed in full; but they may not be replaced if an abstract is printed instead of the complete dissertation.

11. The favorable report of the chief instructor filed in writing with the Secretary of the Graduate Board, shall be a sufficient imprimatur or authorization for printing as a dissertation. The printed copies shall bear upon the cover and title page the statement of approval in the following words, over signature of the chief instructor:

A Dissertation submitted to the Graduate Board of Clark University, Worcester, Mass., in partial fulfillment of the requirements for the degree of Doctor of Philosophy, and accepted on the recommendation of (NAME OF CHIEF INSTRUCTOR)

12. *Examinations for the Doctor's Degree.* The examinations for the Doctor's degree may be held at any time during the academic year, provided that at least one academic year has elapsed since the completion of the preliminaries of candidature, except in the case of fulfillment of these conditions between the beginning of any academic year and November first of that year, to which case Rule 6 applies. The examinations shall be held at such hours and places as the President may appoint.

13. Examinations may also be held during the regular vacations of the University, but for these an additional fee of five dollars to each examiner and the reasonable traveling expenses of any examiners who are out of town, all payable in advance, will be required.

THE DEGREE OF MASTER OF ARTS

This degree is conferred upon candidates who comply with the following requirements:

1. The candidate shall have previously taken the degree of Bachelor of Arts, or have had a substantial equivalent for the training implied by that degree, to be determined by special vote of the Graduate Board; but such degree or training must involve a good preparation for the work proposed for the Master's degree, in order that it may be accepted.

2. The candidate must devote a full academic year to post-graduate work in this University after receiving the Bachelor's degree or the training accepted as its equivalent. This work shall be mainly in one department, but the candidate may do also such other work as shall be advised by the head of his principal department—whose approval of the whole course shall be necessary. In particular cases, the candidate may be allowed, by special vote of the Graduate Board, to divide his work between two years; but the aggregate must, in all cases, amount to a full year's work, at least.

3. The candidate must satisfy his principal department that he has done his work faithfully and has mastered the subjects involved, by such written and oral examinations and other tests

as the department may require. The department shall make a written report to the Graduate Board of the grounds on which the candidate is recommended, specifying the amount and character of his work, and this report shall be filed in the office of the Secretary of the Graduate Board.

4. The candidate must present a thesis or written report on some topic included in his course or closely related to it, that shall receive the approval of his principal department, be accepted by the Graduate Board, and deposited in the Library.

5. Every candidate recommended for the Master's degree shall pay a fee of ten dollars.

6. The Master's degree will be conferred at the annual Commencement in June of any year on those candidates only who shall have made written application to be considered as such on or before February first preceding and shall have fulfilled all the conditions here specified at least one week before Commencement, at which time the academic year shall be regarded as ending for the purposes of Rule 2. The degree may also be conferred at the beginning of the second semester.

The Graduate School of Geography

STAFF

WALLACE W. ATWOOD, PH.D., Professor of Physical and Regional Geography and Director of the Graduate School of Geography.

CHARLES F. BROOKS, PH.D., Associate Professor of Meteorology and Climatology.

ELLEN C. SEMPLE, A.M., Lecturer in Anthropogeography, Summer School, 1921, and first semester, 1921-22.

PRESTON E. JAMES, A.M., Instructor in Geography.

HELEN G. THOMAS, A.B., Lecturer in Geography, Summer School, 1921.

STANISLAUS T. J. NOVAKOVSKY, PH.D., Associate Professor of Economic Geography.

DOUGLAS C. RIDGLEY, A.B., Lecturer in Geography.

OTHER MEMBERS OF THE UNIVERSITY STAFF OFFERING CLOSELY RELATED WORK

GEORGE H. BLAKESLEE, PH.D., Professor of History and International Relations.

HARRY E. BARNES, PH.D., Professor of History.

FRANK H. HANKINS, PH.D., Professor of Sociology.

HOMER P. LITTLE, PH.D., Professor of Geology.

GENERAL STATEMENT

During the last few years the American people have been awakened, in a remarkable way, to an interest in Geography. The period of isolation in national development is passed, and we have come to realize, almost suddenly, that the United States of America is one of the leading nations of the world and vitally interested in almost everything that is going on in the world.

This awakening, and the consequent broadening of our horizon, have forced us to recognize that we have neglected in this country the scientific study of Geography. Many of the universities and colleges of this country are now calling for trained geographers.

Commissioners of education, normal schools, and high schools are looking for men or women who can serve as supervisors or as special teachers of Geography. The large financial houses are endeavoring to train men in commercial Geography in their own schools. The departments of the Government are now using trained geographers, and the Civil Service Commission has recently recognized the profession of Geography. No one should enter consular or diplomatic service who has not been trained in the geography of this country and in the geography of the world. The intelligent reading of current literature is demanding a greater and greater knowledge of the peoples and of the conditions in distant lands.

In the Graduate School of Geography there will be opportunities given to properly qualified students to secure special training in Geography. The staff will be composed of experts in the various fields of Geography. They must of necessity spend a portion of their time in travel and in field studies, but while in residence, they will offer regular courses of instruction and direct advanced students in research work. It is not the intention to offer all courses of instruction each year; many of them will be given once in two years. Abundant opportunities for instruction will be provided, but graduate students should not burden themselves by attending too many lecture courses. They must depend very largely for their growth upon their individual efforts in the pursuit of research work, under the direction of members of the staff.

Advanced studies in History, Economics, and Sociology, as well as a reading knowledge of the modern languages are important to all students of Geography, and the attention of such students is called to the announcements in those several departments. The map collection and the Library offer unusual facilities for research work in residence, but it is hoped that all graduate students, before completing their University work, may undertake field studies.

The aim in conducting the graduate school of Geography will be to promote in every way possible productive scholarship and to train those who wish to enter the profession to become leaders in their chosen fields of work.

A complete statement regarding tuition and expenses, Fellowships and Scholarships, and general conditions of work will be found on pages 21-26.

METEOROLOGY.

Clark University, 1921-1922. Geography 121. C.F. Brooks, Instructor.

Meetings at 9 a.m., M., T., & F., on roof of Main Building and in Rm. 108.
Laboratory and field work 3-4 p.m. Monday or Tuesday, or at some other time to be arranged.

COURSE OF THE COURSE.

- 1st week, Sept. 28-30: The atmosphere and solar radiation.
- 2nd week, Oct. 3-7: Heating and cooling of the ground.
- 3rd week, Oct. 10-14: Water bodies as heat reservoirs.
- 4th week, Oct. 17-21: How the air is warmed and cooled.
- 5th week, Oct. 24-28: Temperatures in the free air.
- 6th week, Oct. 31-Nov. 4: Atmospheric pressure and convective winds.
- 7th week, Nov. 7-9: The winds of the earth.
- 8th week, Nov. 14-18: Water in the atmosphere.
- 9th week, Nov. 21-25: Forms of precipitation.
- 10th week, Nov. 28-Dec. 2: Theories of origin of cyclones and anticyclones.
- 11th week, Dec. 5-9: Movement and characteristics of cyclones and anticyclones.
- 12th week, Dec. 12-16: Local thunderstorms.
- 13th week, Dec. 19-23: Line thunderstorms, tornadoes and water-spouts.
- 14th week, Jan. 2-6: Weather forecasting from observations at a single station.
- 15th week, Jan. 9-13: The weather map and daily weather forecasting.
- 16th week, Jan. 16-20: How forecasts and current weather data are used in agriculture, industry, commerce, engineering, public health, etc.
- 17th week, Jan. 23-27: Aeronomical meteorology.
- 18th week, Jan. 30-Feb. 3: Long-range weather forecasting.

The course will be conducted largely in the form of a seminar, and each member of the class will be expected to contribute special discussions. There will be no definitely assigned reading, but all should be prepared through reading in books or special articles to take part in the discussion of the different phases of meteorology as they are taken up.

It is the duty of every citizen to be prepared to defend his country at all times.

The first step in preparing for war is to know the enemy. This can be done by studying the history of the country and the character of the people. It is also important to know the geography of the country and the location of the enemy's forces.

The second step is to train the citizenry in the use of arms. This can be done by organizing militia companies and by holding regular drills. It is also important to teach the citizenry the principles of warfare and the importance of discipline.

The third step is to build up the country's defenses. This can be done by constructing fortifications and by maintaining a strong navy. It is also important to develop a system of communication and to ensure that the country is able to sustain itself in the event of a long war.

The fourth step is to maintain a strong and united government. This can be done by ensuring that the laws are just and that the government is accountable to the people. It is also important to foster a sense of patriotism and to encourage the citizenry to sacrifice for the good of the country.

CLIMATE.

Clark University, 1923-1924. Geography 233. C.F. Brooks, instructor

Beginnings at 11 a.m. M., W. and F. in room 100. Laboratory work to be arranged.

OUTLINE OF THE COURSE.

- 1st and 2nd weeks: The climatic factors: temperature.
- 3rd week: The moisture of the atmosphere: humidity, precipitation and cloudiness.
- 4th week: Wind, pressure and evaporation. Composition of the atmosphere as a factor in climate.
- 5th week: The weather element in climate.
- 6th week: Phenological observations. Seasonal work on farm crops.
- 7th week: General climatology; solar climate and the chief varieties of physical climate.
- 8th week: Continental and marine climates: influence of land and water upon the distribution of temperature. Mean temperatures of parallels of latitude and of the hemisphere.
- 9th week: Influence of continents upon wind, humidity, cloudiness and precipitation.
- 10th week: Influence of ocean currents on climate. Forests and climate.
- 11th week: Mountain climate: pressure and solar radiation, air temperature, annual and diurnal range of temperature in mountain climates.
- 12th week: Effects of mountains on humidity, cloudiness and precipitation. Snowline and glaciers. Climatic zones on mountains.
- 13th week: Mountain and valley winds and correlated phenomena. The fohn, sirocco, bora and alizai. Mountains as climatic barriers.
- 14th week: World distribution of the climatic elements and types of weather.
- 15th week: Paleoclimatology.
- 16th week: Fluctuations of climate and the migrations of man.
- 17th week: Adaptations of man to types of climate as they are. Acclimatization; especially, white man in the tropics.
- 18th week: Review.

The course will be conducted largely in the form of a seminar, and each member of the class will be expected to contribute special discussions. There will be no definitely assigned reading, but all should be prepared through reading in books or special articles to take part in the discussion of the different phases of meteorology as they are taken up.

COURSES IN GEOGRAPHY

I. PRIMARILY FOR UNDERGRADUATES

I. PRINCIPLES OF GEOGRAPHY. This course will begin with a study of the local geography—the factors influencing the settlement and development of Worcester—followed by a broader study of New England. Then other regions will be taken up, and their peculiar types of geographic environment and life response will be examined, in each case drawing careful analogies and contrasts with regions already known. In this way the main types of geographic environment will be studied in detail; and, as the course progresses, the fundamental principles of physiography, climatology, and economic geography will be developed. Man as a geographic agent will be discussed: his political geography, frontiers—natural and artificial—his states and cities, and his use of the land. The latter part of the course will be utilized to review the regional studies already concluded, and to deduce therefrom the fundamental principles of the science. A certain amount of laboratory work will be required in addition to the three regular class meetings each week. The entire staff of the Department of Geography will co-operate in giving this course. Indivisible course.

Three hours, through the year.

MR. JAMES in charge

New course. To be offered in 1922-23.

II Ib. PHYSIOGRAPHY (introductory course).

Four ~~Three~~ hours, second semester.

MR. ATWOOD

Not to be offered in 1922-23.

121a. METEOROLOGY. By a close observation of the weather the course will point out not only the signs which indicate the weather of the immediate future, but also the physical processes by which the changes take place. This will lead to an understanding of the principles of meteorology. The course will include a study of the physical properties of the atmosphere; the elements: temperature, pressure, winds and moisture of the atmosphere, and their interrelations in various types of weather. How to read and use the weather map. The present status of weather forecasting. Frost, storm, and flood warnings. The work of the United States Weather Bureau. The weather factor in agriculture, aeronautics, and public health.

Three hours, first semester.

MR. BROOKS

Not to be offered in 1922-23.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

241a. GEOGRAPHY OF NORTH AMERICA. The physical environment of North America will be the subject of this course. The natural regions of the continent and the fundamental basis for their subdivision will be studied. The climates, their causes and effects, will be covered. There will be a review of the major natural resources of each region. Finally, the present distribution of population, industry, and culture will be discussed, together with the geographic factors which have influenced their location and development. A certain amount of laboratory work will be required in addition to the three regular class meetings each week.

Three hours, first semester.

MR. JAMES

Not given in 1921-22.

242b. (244, in 1921 Catalogue.) GEOGRAPHY OF SOUTH AMERICA. This course will treat the physical setting of the South American continent. The place of South America in relation to North America and the rest of the world will be shown. The relation to the climatic zones, and a résumé of the larger topographic features will be followed by a more detailed study of the continent, in which the division into natural regions will form the basis of study. The three factors in environment—land surface, climate, and natural resources—will be covered for each region, and the reaction of the inhabitants to their environment will be measured against hereditary and historical influences in the explanation of present-day conditions. Comparison with familiar points in the United States will be made frequently throughout. A certain amount of laboratory work will be required in addition to the three regular class meetings each week.

Three hours, second semester.

MR. JAMES

233a. THE GEOGRAPHY OF THE MEDITERRANEAN REGION, ESPECIALLY IN RELATION TO ANCIENT HISTORY. Lectures and assigned readings. A geographic interpretation of ancient history in Mediterranean lands, embracing a study of the various geographic factors operative in the countries bordering this enclosed sea under the peculiar influences of the Mediterranean climate, at a time when the Mediterranean region constituted most of the known world. The lectures discuss the intercontinental location of the Mediterranean Sea, the barrier boundaries and the breaches

234a Anthropogeography
5 hrs, 1st sem.

Miss Sample

235a Geog. of Europe

2 hrs

in the same, the size, shape, and subdivisions of this marine basin, its relation to the Atlantic Ocean as also to the Red and Black Seas; the prevailing mountainous relief of Mediterranean lands, highly articulated coasts, peninsulas, islands, and continental hinterlands, rivers and river valleys; rainfall, temperatures, and winds; and finally, the effect of these various geographic conditions upon ancient agriculture, stock raising, forestry, industry, navigation, trade, and colonization, besides several other aspects of the economic, social, and political life in this region.

Three hours, first semester.

MISS SEMPLE

New course. To be offered in 1922-23.

272b. ECONOMIC GEOGRAPHY OF EUROPE. This course will discuss the distribution of the natural resources, and the geographic factors which have influenced their utilization. The following countries of Europe will be covered: Russia, Finland, Ukrainia, Caucasus, Poland, Baltic States, Lithuania, Checho-Slovakia, Hungary, Austria, Balkan States, Germany, France, England, Belgium, Sweden, Norway, Denmark, Holland, Italy, Switzerland, Spain, Portugal, Turkey.

Three hours, second semester.

MR. NOVAKOVSKY

New course. To be offered in 1922-23.

236a. GEOGRAPHY OF PALESTINE. An anthropogeographical study of the Holy Land, with reference to the influence of its location, climate, relief, and soil upon ancient Hebrew life and religion. This course is designed for students of ancient history and of the Bible. Lectures and assigned reading.

One hour a week in afternoon, first semester.

MISS SEMPLE

New course. To be offered in 1922-23.

271b. ECONOMIC GEOGRAPHY OF ASIA. This course will cover the topography, climate, natural resources, routes of transportation, and the utilization of these by the inhabitants in the following divisions of Asia: Siberia, Russian Turkestan, Eastern Turkestan, Tibet, Mongolia, Manchuria, Russian Far East, Japan, Korea, Formosa, China, Indo-China.

Three hours, second semester.

MR. NOVAKOVSKY

264b. ECONOMIC GEOGRAPHY OF EUROPE. A study of Europe from an economic point of view; its configuration and physical

features, climate, resources of the soil and subsoil, races and nationalities, industries and commerce, in their relation to America and the world. Lectures, reports, and discussion.

Two hours, second semester.

MR. HILMER

To be omitted in 1922-23.

221a. (224, in 1921 Catalogue.) THE PASSING WEATHER. To explain the features of the passing weather requires investigations deep into every branch of meteorological physics. The value of such a study transcends its instructiveness to the student: the results cannot fail to advance the science and to provide a surer foundation for forecasting weather from observations made at one place. Prerequisite: Meteorology.

Three hours, first semester.

MR. BROOKS

261b. GEOGRAPHY IN EDUCATION. This course aims to give a survey of geography work as it now exists in the American school system, including especially the elementary school, high school, and teacher-training institutions. The growth of geography in colleges and universities is also noted. The point of view in the organization of the course is that of the teacher of geography in normal schools and normal colleges and of the supervisor in the elementary school. The concrete problems of the training of teachers of geography and of the supervising of teachers of geography receive specific attention. Representative courses of study are examined and evaluated. Principles underlying the curriculum in geography are studied and applied to the outlining of courses in the elementary school, high school, and normal school. Various methods of teaching geography are presented and tested. The published educational tests in geography and their bearing on the teaching of geography are considered. Standard geographic equipment for different classes of schools, the geographical library, and materials for visual instruction in geography receive attention. Local field trips are taken and their place in geography teaching discussed. Members of the class who are confronted with specific problems in geography teaching or in course-making may deal with them as special topics, presenting their results for the consideration of the class.

Three hours, second semester.

MR. RIDGLEY

New course. To be offered in 1922-23.

226b. *Climates of the World.*

Four hours, second sem.

Mr. Brooks

3. PRIMARILY FOR GRADUATE STUDENTS

322a. INFLUENCES OF CLIMATIC ENVIRONMENTS. The influence of the climatic element of environment on the means of sustenance and on the physiological well-being of people: a study of the principles of climatology, followed by a comparison of the major types of climatic environment found in different parts of the world.

Climatology provides a systematic basis for the studying of particular climates. Thus it deals with weather types and the manifold combinations of weather elements, particularly temperature, atmospheric moisture, and winds, and their classification: e. g., into solar, continental, marine, and mountain climates. Changes of climate in geological and historical time will be considered.

The climates of the world are to be studied in a comparative way, especially to make manifest the similar human responses to similar climates in widely separated parts of the world, and local peculiarities and effects. Special attention will be given to the climatic factor in White Man's distribution and in his migrations past and present. His adaptability to unfavorable climates will be discussed, particularly with regard to the development of tropical and polar regions.

Three hours, first semester.

MR. BROOKS

312b. PHYSIOGRAPHY OF THE UNITED STATES. This course will be an intensive and critical study of the physiographic evolution of land forms in each of the natural regions of this country. It is planned for those students who wish to secure special training in Physiography and who are sufficiently familiar with the principles of Geology and Physiography to review all important contributions to this field of study.

Second semester.

MR. ATWOOD

331a. SEMINAR FOR ANTHROPOGEOGRAPHY. Themes for investigation and discussion will be assigned to the seminar group as a whole, each week for the first two months. Later such themes will be assigned to individuals, with a special view to training in the inductive methods of research.

Meetings at convenience of instructor and students.

First semester.

MISS SEMPLE

311b. SEMINAR IN GEOGRAPHY. Round-table discussions will be conducted for the graduate students of geography, and recent publications will be reviewed. Students will also present portions of their thesis work from time to time. This seminar is expected to alternate with a series of lectures given by experts in special fields of geographic investigation.

Second semester.

MR. ATWOOD

371. HISTORY OF GEOGRAPHIC EXPLORATION.

Omitted in 1922-23.

MR. NOVAKOVSKY

372. HISTORY OF GEOGRAPHY AS A SCIENCE AND THE THEORIES OF GEOGRAPHIC ENVIRONMENT IN AMERICA.

Omitted in 1922-23.

MR. NOVAKOVSKY

312. RESEARCH IN REGIONAL GEOGRAPHY.

MR. ATWOOD

321. RESEARCH IN METEOROLOGY OR CLIMATOLOGY.

MR. BROOKS

341. RESEARCH IN THE GEOGRAPHY OF SOUTH AMERICA.

MR. JAMES

Special Series of Lectures

SECOND SEMESTER 1921-22

- I. Studies in Plant Geography DR. HOMER L. SHANTZ
United States Bureau of Plant Industry
- II. Tropical Forests and Temperate Forests contrasted from
a Climatic Standpoint.
Nature of Tropical Forests.
Economic Importance of Tropical Forests.
Economic Use of Tropical Forests by Tropical People.
Primitive People and Tropical Forests.
DR. H. W. WHITFORD
Yale School of Forestry
- III. Principles of Soil Development.
Description of Soils of the United States.
Distribution and Characteristics of Various Soil Families.
DR. CURTIS F. MARBUT
United States Bureau of Soils
- IV. Natural Resources of Alaska. DR. ALFRED H. BROOKS
United States Geological Survey
- V. Population of Mexico.
Anthropogeography of the Inca Empire.
Some Aspects of the Land Tenure System in Latin America.
DR. GEORGE McC. McBRIDE
American Geographical Society
- VI. Uses of Land.
Geographic Influences in the Expansion of American Agriculture.
Present Trend of Land Utilization.
Increasing Importance of Geographic Conditions in Agricultural Development.
Prospect of Increasing Agricultural Production by Reclamation and Fertilization.
Population and Food Supply—A World View.
DR. O. E. BAKER
United States Bureau of Farm Management and Farm Economics

CONFERENCE ON RUSSIAN AFFAIRS

- I. Natural Resources of Russia.
STANISLAUS NOVAKOVSKY, PH.D.
 Professorial Lecturer at Clark University
- II. The Future of Russian-American Trade and Financial Relations.
PROFESSOR JOSEPH M. GOLDSTEIN, PH.D.
 University of Moscow and Moscow
 Institute of Commerce and Industry
- III. Tragedy of Russian Intelligentsia.
GENERAL C. M. OBEROUTCHEFF
 President of the Association for the
 Relief of Men of Letters and Science in Russia
- IV. The Contribution of Russia to the World's Culture.
ALEXANDER PETRUNKEVITCH, PH.D.
 Professor of Zoölogy at Yale University
- V. The Struggling Russia. 1917-1922. A. J. SACK
Director of the Russian Information
 Bureau in the United States, also author
 of *The Birth of Russian Democracy*

The Summer School

After a lapse of many years, in 1921 the University again opened a Summer School. The session extended from July 5 to August 12, and was attended by almost two hundred students, of whom about 66 per cent were women and 34 per cent men.

The plan of the session of 1922, which begins July 10 and ends August 18, is essentially the same as that of last year. Geography and History constitute the chief departments of instruction, while courses are offered also in Social Science, Psychology, Education, English, French, Spanish, and German.

Qualified students are admitted upon presentation of proper credentials. Both undergraduate and graduate work is offered, and credit awarded accordingly. Work done in the Summer School may be counted, subject to the regulations of the Collegiate and Graduate Boards and of the various departments of the University, toward fulfillment of the requirements for the Bachelor's degree and advanced degrees of Clark University.

The tuition charges at present are twenty, thirty, or forty dollars per session, according to the number of courses taken. Rooms in the vicinity of the University cost from three dollars a week up, and the University Dining Hall will provide board this summer at \$6.50 per week.

The Summer School Bulletin, containing detailed information about the coming session, with description of the various courses, may be had upon application to the Director of the Summer School, Clark University, Worcester, Mass.

The list of students who attended the session of 1921 will be found on pages 153-155 of this Catalogue. The Instructional and Administrative Staff for the session of 1922 is as follows:

WALLACE WALTER ATWOOD, PH.D. Geography
President of Clark University and Head of the School
of Geography.

CHARLES BREWSTER RANDOLPH, PH.D.
(Professor of German, Clark University) Director of
the Summer School.

HELEN GOSS THOMAS, A.B. Geography
Formerly Instructor in Geography, Wellesley College.

- DOUGLAS CLAY RIDGLEY, A.B. Geography
Professor of Geography, Illinois State Normal University.
- CHARLES FRANKLIN BROOKS, Ph.D. Meteorology and Climatology
Associate Professor of Meteorology, Clark University.
- PRESTON EVERETT JAMES, A.M. Geography
Instructor in Geography, Clark University.
- THEODORE COLLIER, Ph.D. History
Professor of History, Brown University.
- HARRY ELMER BARNES, Ph.D. History
Professor of History, Clark University.
- FRANK HAMILTON HANKINS, Ph.D. Social Science
Professor of Sociology, Clark University.
- EDMUND CLARK SANFORD, Ph.D., Sc.D., LL.D. Psychology
Professor of Psychology and Education, Clark University.
- HARVEY SNYDER GRUVER, A.M. Education
Superintendent of Schools, Worcester.
- LORING HOLMES DODD, Ph.D. English
Professor of English, Clark University.
- ROBERT STANLEY ILLINGWORTH, A.B. Dramatics
Assistant Professor of Public Speaking, Lafayette College.
- PHILIP HUDSON CHURCHMAN, Ph.D. French and Spanish
Professor of Romance Languages, Clark University.
- GUSTAVUS L. SPILLMAN, A.B. German
Professor of German, University of Louisville.
- CAREY EYSTER MELVILLE, A.B.
(Associate Professor of Mathematics and Collegiate Registrar, Clark University) Registrar of the Summer School.
- DOROTHY A. DUGGAN
Secretary to the Director.

COURSES OF INSTRUCTION

Courses marked with an asterisk may be taken for graduate credit. All courses meet five times a week, with class periods of fifty minutes each.

GEOGRAPHY

- SS122. THE PASSING WEATHER. MR. BROOKS.
- SS141. PHYSIOGRAPHY (introductory course). MR. JAMES.
- SS161. THE TEACHING OF GEOGRAPHY IN THE ELEMENTARY School. MR. RIDGLEY.
- *SS212. GEOGRAPHY OF NORTH AMERICA. MR. ATWOOD.
- *SS213. THE REGIONAL TREATMENT OF GEOGRAPHY. MR. ATWOOD.
- *SS224. THE INFLUENCE OF CLIMATIC ENVIRONMENT. MR. BROOKS.
- *SS241. GEOGRAPHY OF SOUTH AMERICA. MR. JAMES.
- *SS251. THE NATURAL RESOURCES OF THE UNITED STATES AND THEIR CONSERVATION. MRS. THOMAS.
- *SS252. THE GEOGRAPHICAL CHANGES RESULTING FROM THE WORLD WAR. MRS. THOMAS.
- *SS261. THE TEACHING OF GEOGRAPHY IN NORMAL SCHOOLS AND TEACHER-TRAINING COLLEGES. MR. RIDGLEY.
- *SS313. RESEARCH IN REGIONAL GEOGRAPHY. MR. ATWOOD.
- *SS323. RESEARCH IN CLIMATOLOGY. MR. BROOKS.

HISTORY

- *SS6. THE WORLD WAR AND ITS AFTERMATH. MR. COLLIER.
- *SS7. THE HISTORICAL ROOTS OF THE RUSSIAN REVOLUTION. MR. COLLIER.
- *SS8. THE DEVELOPMENT OF AMERICAN SOCIETY. MR. BARNES.
- *SS9. THE INTELLECTUAL BACKGROUND OF MODERN SOCIETY. MR. BARNES.

SOCIAL SCIENCE

- SSI. INTRODUCTION TO THE SOCIAL SCIENCES. MR. HANKINS.
- *SS2. TEACHING THE SOCIAL SCIENCES. MR. HANKINS.

PSYCHOLOGY

- SSI. EDUCATIONAL PSYCHOLOGY. MR. SANFORD.

EDUCATION

- *SS3. PRINCIPLES OF EDUCATION. MR. GRUVER.
 *SS4. ORGANIZATION, ADMINISTRATION, AND SUPERVISION OF
 PUBLIC SCHOOLS. MR. GRUVER.

ENGLISH

- *SS3. MODERN VERSE. MR. DODD.
 *SS4. MODERN DRAMA. MR. DODD.
 SS5. DRAMATICS. MR. ILLINGWORTH.

FRENCH

- SSI. ELEMENTARY FRENCH. MR. CHURCHMAN.
 *SS3. ADVANCED PRONUNCIATION OF FRENCH. MR. CHURCH-
 MAN.
 *SS4. AIMS AND METHODS OF TEACHING FRENCH, WITH
 INCIDENTAL ATTENTION TO SPANISH AND GERMAN. MR. CHURCH-
 MAN.

SPANISH

- SSI. ELEMENTARY SPANISH. MR. CHURCHMAN.

The Library

LOUIS N. WILSON, *Librarian*

EDITH M. BAKER, *Senior Assistant*, HELEN J. ELLIOT, *Cataloguer*, ZOE M. DEXTER,

EDITH L. SAWYER, ANNA M. SWEETSER, *Assistants*, R. J. CONKLIN,

DWIGHT THAYER, *Student Assistants*

The Library under the terms of Mr. Clark's will received one quarter of his estate for the "support and maintenance of a University Library." Thus the Library is well endowed and is able to provide amply for the needs of all departments.

The Library Building is situated on the corner of Main and Downing Streets. A full description of the building and of the Proceedings at the Public Opening which was held January 14, 1904, will be found in the Publications of the Clark University Library for April 1904 (Vol. 1, No. 3).

The Library contains over 98,000 bound volumes and pamphlets, and the reading room receives over 500 journals.

The books are grouped as follows:

A WORKS OF GENERAL REFERENCE	L BIOGRAPHY
B JOURNALS	M ANTHROPOLOGY
C MATHEMATICS	N EDUCATION
CD MATHEMATICS-PHYSICS	O GENERAL SCIENCE
D PHYSICS	P HISTORY
DE PHYSICAL CHEMISTRY	R POLITICAL AND SOCIAL SCIENCE
E CHEMISTRY	ECONOMICS
F BIOLOGY, ZOÖLOGY, BOTANY,	S ENGLISH
PHYSIOLOGY, NEUROLOGY	T MODERN LANGUAGES
G GEOGRAPHY	U CLASSICS
H PATHOLOGY	W PRACTICAL ARTS
I PSYCHOLOGY	X LIBRARY SCIENCE
J PHILOSOPHY	Y ART
K RELIGIOUS PSYCHOLOGY	Z EUROPEAN WAR

Tuesday and Friday mornings, each week, all books recently added to the Library are placed upon a table in the reference section where they remain for three days. This affords the members of the University an opportunity to examine the new books in all departments before they are placed upon the shelves for circulation.

Particular attention is paid to the needs of students engaged in research work. The Library already possesses a good collection

of complete sets of the best scientific periodicals. It makes liberal purchases for individual needs and supplements these by drawing upon the resources of the older and larger libraries through the inter-library loan system. The number of books added each year is about four thousand volumes.

The books in the Art Department are accessible on application to the Librarian, but, by the terms of the Founder's will, they cannot be taken from the building.

All the privileges of the Library are open to all members of the University, and each member has direct access to every book and journal.

The Library is open from 8 a.m. to 10 p.m. each week day, except on legal holidays, from the opening of the fall term until the close of the Summer School.

ART DEPARTMENT

In his last will and testament the Founder of the University bequeathed

"the sum of \$100,000, as an endowment fund for the Art Department of said University, and said sum is to be held and kept sacred and intact as a principal not to be used or expended under any conditions; but the income, interest or proceeds thereof shall be used only in putting and keeping said works of art or others given or obtained for said department in good condition and in taking care of them; and then if there is a surplus of the income of said fund left, I will and direct that it be used in the purchase of additional works of art or of such matters as will add to the usefulness and efficiency of said Art Department."

Under these conditions a large room has been furnished and equipped on the upper floor of the Library Building. Upon the death of Mrs. Clark, those of the Founder's collections that were deemed most suitable for this purpose were arranged and displayed in this room, together with his most valuable books, which, by the conditions of the will, cannot be removed from the building. A complete catalogue of these books and paintings has been published in the Publications of the Library, Vol. 2, No. 1.

The Art Department is open daily (except Sundays and holidays) from 9 a.m. to 5 p.m.

Four portraits and one landscape painting have been added to the collection:

1909. Portrait of the late Carroll D. Wright, president of the Collegiate Department from 1902 to 1909, by the late Frederick P. Vinton of Boston. This painting was awarded the Temple Gold Medal at the 1909 Exhibition of the Pennsylvania Academy of Fine Arts.

1911. Portrait of G. Stanley Hall, president of Clark University from 1888 to 1920, by the late Frederick P. Vinton of Boston.

1913. Landscape painting "Snowing," by Joseph H. Greenwood of Worcester.

1914. Portrait of Edmund C. Sanford, president of Clark College from 1909 to 1920, by Joseph De Camp of Boston.

1921. Portrait of Augustus George Bullock, member of the Board of Trustees since 1901 and president of the Board from 1905 to 1919, by Leslie P. Thompson of Boston.

To commemorate the twenty-fifth anniversary of the University the Board of Trustees, early in 1914, commissioned Mr. Victor D. Brenner of New York to prepare a medal to mark that event. The medal is made of bronze and is three inches in diameter. On the obverse is delineated the head of President Hall, and on the reverse a beautiful allegorical group symbolizing the spirit of the University, and the legend,

"Knowledge is proud that he has learned so much,
Wisdom is humble that he knows no more."

Scale models of the buildings and the University grounds have been made by T. J. McAuliffe and Son of Worcester, under the direction of the architects, Messrs. Frost and Chamberlain.

Departmental Announcements and Lists of Courses

Courses offered by the several departments are listed under three headings:

1. PRIMARILY FOR UNDERGRADUATES, designated by numbers beginning with the figure "1."
2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS, designated by numbers beginning with the figure "2."
3. PRIMARILY FOR GRADUATE STUDENTS, designated by numbers beginning with the figure "3."

All courses listed have been given during the current academic year unless a statement to the contrary is made.

DEPARTMENT OF ANCIENT LANGUAGES

PROFESSOR BRACKETT

All courses in Greek and Latin are designed primarily for undergraduates. To any of these courses, however, properly qualified graduate students may be admitted by special permission. The amount of credit granted to such students will be determined in accordance with the regulations of the Graduate Board.

GREEK

Provision is made in the courses in Greek both for students who have previously studied Greek in the high school, and for those who wish to begin the subject in college. In admitting students to the College full credit is given for one, two, or three years of high school Greek. Those who have pursued successfully the study of Greek for two or three years may enter directly into course II. Students who purpose to study Greek in college are strongly advised to take this subject in the preparatory school for two years if possible. The department recommends that these two years be devoted first to the elements of the language,

and then either exclusively or principally to the reading of Attic prose (either the *Anabasis* of Xenophon, or prose selections such as are found in Colson's *Greek Reader*). Students who have had but one year of Greek may continue the subject in college by entering Greek 14 at the beginning of the second semester. It is the belief of this department that many high schools which cannot expediently offer more than one or two years of Greek may properly and wisely offer a course of that length.

In all the work of the department an effort is made to correlate the past with the present; to make real to the student the life and civilization of Greece; and to give him an adequate appreciation of the importance which this civilization possesses as an element in our modern civilization.

For a *major* in Greek the requirement is twenty-four hours from the courses described below, of which at least eighteen must be in Greek.

The first semester of History 19 is a requirement for students electing Greek as a *major*. The *minor*, which may include History 19, may be taken in either Latin, English, German, or Romance Languages. Students who intend to teach Greek are strongly advised to take their *minor* in Latin.

Attention is called to the fact that some acquaintance with Greek life and thought may be gained by students who have no knowledge of the Greek language in Greek 16 (Greek Tragedy in English) and History 19 (History of Greece and Rome). Greek 16 may be taken as part of a *minor* when a student's *major* is in English, German, or Romance Languages.

LATIN

Since a substantial number of students are admitted to the college who have not previously studied Latin, the department offers to such students an opportunity to take an introductory course in this subject.

For a *major* in Latin the requirement is twenty-four hours from the courses described below, of which at least eighteen hours must be in Latin. The remaining six hours may be in Greek (except Greek 16) or in History 19. The second semester of History 19 is required of all students who take a *major* in Latin.

COURSES IN GREEK

(Courses 11 and 12 only will be offered in 1922-23)

I. PRIMARILY FOR UNDERGRADUATES

11. (14, in 1921 Catalogue.) FIRST YEAR COURSE. The purpose of this course is to furnish to mature students who have never studied Greek an opportunity to begin this subject in college. The course not only has in view the needs of students of theology and language, but in connection with the use of Greek in scientific nomenclature should have value for students of science as well. The rate of progress is rapid. At the end of the year students should be able to read ordinary Attic prose with facility and it is expected that students taking this course who desire to continue Greek will be able to enter the regular freshman courses. Indivisible course.

Three hours, through the year.

PROFESSOR BRACKETT

12. (11, in 1921 Catalogue.) PLATO, *Apology*; HOMER, *Iliad*. In the first part of the first semester Plato's *Apology of Socrates* is read, and the work centers about the life, character, and later influence of Socrates. The remainder of the year is devoted to a study of the *Iliad*. The aim in this work is distinctly literary, and such selections are read as will enable the student to gain as far as possible an intelligent appreciation of the poem as a whole.

Three hours, through the year.

Omitted in 1921-22.

13. (12, in 1921 Catalogue.) THE GREEK DRAMA. Aeschylus, *Prometheus Bound*; Sophocles, *Oedipus Tyrannus*; Euripides, *Hippolytus*. This course is designed to give a general view of Greek tragedy. Lectures or discussions deal with the staging of a Greek play, the origin and development of the drama, and the other works of the authors read. The best translations and imitations of the plays read are indicated, and may be assigned for private reading. Three or four other plays of each of these authors are read in translation and discussed in class.

Three hours, through the year.

Omitted in 1921-22.

14. (13, in 1921 Catalogue.) HERODOTUS; Lyric Poetry; PLATO, *Republic*, books 1-2; THEOCRITUS. The reading of book 7

of Herodotus is followed by a study of the most important remains of the Greek elegiac, iambic, and melic poets, including Tyrtaeus, Solon, Alcæus, Sappho, Archilochus, Simonides, and Anacreon. The aim of the work in Plato is by the reading of part of the *Republic* in Greek, and most of the remainder in translation, to enable the student to come into contact with the mind and spirit of Plato. About eight weeks at the end of the year are devoted to reading selections from the *Idyls* of Theocritus.

Three hours, through the year.

Omitted in 1921-22.

15a. NEW TESTAMENT (*Gospel of Luke*). The purpose of this course is, upon the basis of an accurate reading of the text, to make a careful objective study of the content of the narrative. Such an amount of attention is devoted to the language as is necessary for an accurate understanding of the subject matter. The work done in the course will be, it is believed, an adequate preparation for the entrance examination in this subject at any theological seminary. The course is open only to those who have completed Greek 11, except by special permission.

Three hours, first semester.

Omitted in 1921-22.

16. GREEK TRAGEDY IN ENGLISH. This course deals with Greek tragedy as represented in the extant works of Aeschylus, Sophocles, and Euripides. All the reading is done in English translations, for the most part in verse. The central aim of the course is an intelligent and appreciative reading of the plays. Much attention is devoted to the connection between Greek and modern drama. The instructor will deal, in lectures, with the origin and development of Greek tragedy, the Greek theater and related subjects, and with Aristotle's theories concerning tragedy.

Three hours, first semester.

PROFESSOR BRACKETT

COURSES IN LATIN

(Courses 11, 12, 15a and 15b only will be offered in 1922-23)

I. PRIMARILY FOR UNDERGRADUATES

11. (14, in 1921 Catalogue.) FIRST YEAR COURSE. This course is designed to give men who have never studied Latin an

opportunity to learn some of the essentials of the subject in college. It is conducted entirely with reference to the needs of the average student and with emphasis on the practical usefulness of an acquaintance with Latin in everyday life. Some time is devoted to study of the derivation of English words. Indivisible course.

Three hours, through the year.

PROFESSOR BRACKETT

12. (11, in 1921 Catalogue.) CICERO, *de Amicitia*; CATULLUS, Selections; HORACE, Selections from the Odes. The year is about equally divided between the three authors. Great stress is laid throughout the course on accurate and appropriate translation. In connection with the work in Horace and Catullus metrical translation is encouraged, and some of the more famous poems are committed to memory.

Three hours, through the year.

Omitted in 1921-22.

13. (12, in 1921 Catalogue.) PLAUTUS AND TERENCE. At least three plays of each of these authors are read. Ancient comedy, Greek and Latin, is discussed, and the writings of Plautus and Terence are compared. The influence of the writers on subsequent literature is considered, and a few short papers comparing the Latin originals with modern imitations may be required.

Three hours, through the year.

Omitted in 1921-22.

14. (13, in 1921 Catalogue.) LETTERS OF CICERO AND PLINY; SELECTIONS FROM THE *Satires* AND *Epistles* OF HORACE, AND FROM JUVENAL. The greater part of the first semester is devoted to the letters of Cicero, with a study of his life, writings, and influence; during the latter part of the semester the most interesting letters of Pliny are read. In the second semester selections from Horace and Juvenal are read with particular attention to the information they contain in regard to literary and social conditions under the empire.

Three hours, through the year.

Omitted in 1921-22.

15a. SELECTIONS FROM CÆSAR, CICERO, AND OVID'S *Metamorphoses*. This course is open to students who have had Latin or its equivalent. The principal aim is to increase the student's ability to read Latin.

Three hours, first semester.

PROFESSOR BRACKETT

15b. VIRGIL, the *Aeneid*. In this course the controlling purpose is to enable the student, so far as possible, to understand and appreciate the *Aeneid* as literature. The poem will be considered as a whole and the parts which are not read in Latin will be read in selected verse translations.

Three hours, second semester.

Omitted in 1921-22.

DEPARTMENT OF BIOLOGY

ASSISTANT PROFESSOR RICE, MR. DIMITROFF

The courses in biological subjects are designed to meet the needs of four general classes of students.

The first class consists of students who desire to take Biology as a *minor* to supplement other courses or as a general culture subject. Such students may take Biology 11, 14, or 111, or the required number of hours selected from the other courses with regard to the special requirements of each.

The second class includes those who wish to prepare themselves to study Medicine or Sanitary Science. Students of this class should *major* in Biology or Chemistry. A *major* in Biology requires twenty-four semester hours, which, for premedical students, should include courses 11, 13, 15, and 16. The subjects pursued will then be General Biology, Vertebrate Anatomy, Embryology, Histology, and Physiology. Students preparing to take up the study of Sanitation should add to the premedical subjects course 18, which gives introductory training in Bacteriology.

The third class comprises those who intend to make Biology their profession, who wish to prepare themselves to teach the subject and to become skilled investigators. Such students are advised to select Biology as their *major* and should confer with the instructors in the department before determining their programs.

The fourth class includes those students having adequate preparation who desire to pursue research work in Biology. Opportunity is afforded for instruction, supervised experimental work, and also for independent investigation. The laboratories are equipped with the usual apparatus and materials for instruction and investigation in the biological subjects, and any additional equipment required for special purposes will be provided

whenever possible. Conditions are especially favorable with regard to scientific literature. Complete files of nearly all of the important journals in Zoölogy, Physiology, and Biological Chemistry are in the library, as well as a large number of special works in these and other branches of biological science.

COURSES IN BIOLOGY

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL BIOLOGY. This course is designed to serve as a practical introduction to more specialized biological courses, and aims to acquaint the student with the elementary forms, forces, and laws of living nature. Types for study are selected so far as possible from common animals and plants which may be observed alive and functioning under natural conditions. Three lectures and one laboratory period per week.

Three hours, through the year. ASSISTANT PROFESSOR RICE

13. COMPARATIVE ANATOMY OF VERTEBRATES. A comparative study of the structure and development of the organs of vertebrate animals, including man, with minor reference to the lower forms. This course is designed to meet the needs of prospective students of Medicine and those who intend to specialize in Zoölogy. The laboratory work consists of the dissection and study of selected examples of vertebrate animals together with assigned reading. Two lectures and two laboratory periods per week.

Three hours, through the year.

MR. DIMITROFF

To be omitted in 1922-23.

14a. ELEMENTARY BOTANY. This course is offered as an elective for all students and is designed to give a general knowledge of plant life and its relation to human welfare, and also to furnish a basis for further work in Botany. Two lectures and one laboratory period per week.

Three hours, first semester.

MR. DIMITROFF

15. EMBRYOLOGY AND HISTOLOGY. The cellular structure of organisms; the origin of the individual and its development from the egg to the adult; the problems of differentiation and the cytological evidence of heredity. The laboratory work includes an introduction to histological technique and the dissec-

tion and study of the early stages of the frog, chick, and pig. Courses 11 and 13 are advised in preparation for this course. One lecture and two laboratory periods per week.

Three hours, through the year.

Omitted in 1921-22.

16. **ADVANCED PHYSIOLOGY.** This course is designed to give a comprehensive knowledge of Animal Physiology. The student works out the chemical tests for food principles, digestive ferments, urine, water, and air analyses, and determination of hæmoglobin. Considerable time is also devoted to the experimental physiology of muscle, nerve, and sense organs, and of respiration and circulation. Two lectures and one laboratory period per week.

Three hours, through the year. ASSISTANT PROFESSOR RICE

18. **BACTERIOLOGY.** The principles of Bacteriology and their application in Medicine, Sanitation, and various agricultural and industrial processes. The laboratory work includes training in general bacteriological technique, the isolation and study of pure cultures, and the bacteriological examination of water, milk, and sewage. Lectures and laboratory work.

Three hours, through the year.

MR. DIMITROFF

111b. **GENETICS.** Theories of organic evolution; the principles of variation, selection, and heredity; the material basis of heredity; Mendelian inheritance and the application of its principles in animal breeding and eugenics. Lectures, assigned readings, and laboratory work, including experiments in animal breeding. Course 11 or 14a is advised in preparation for this course. Two lectures and one laboratory period per week.

Three hours, second semester.

MR. DIMITROFF

To be omitted in 1922-23.

2. **FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS**
No courses announced.

3. FOR GRADUATE STUDENTS

314. **BIOLOGICAL SEMINAR.** This course is designed to furnish an opportunity for advanced students in other departments to acquaint themselves with some of the more general aspects of Biology. It is proposed to vary the content of this course from year to year, and for the year 1922-23 the subject matter

will be the History of Biology. Previous biological training will not be a prerequisite. Lectures, reading, and reports.

The seminar will meet *once a week*. ASSISTANT PROFESSOR RICE

DEPARTMENT OF CHEMISTRY

PROFESSOR MERIGOLD, PROFESSOR KRAUS, PROFESSOR WHITE, MR. PARKER

The instruction offered in Chemistry falls into two main groups:

First, courses intended primarily for undergraduates. These are designed for those who wish to acquire the necessary foundation for professional work in Chemistry and for premedical students who wish to gain that knowledge of Chemistry which is becoming of constantly increasing importance as preparation for the best medical schools. These courses are also intended for those desiring some knowledge of the subject as part of their general education.

Second, courses intended primarily for graduates. These courses offer advanced instruction to students possessing the requisite foundation in Chemistry, Physics, and Mathematics, and afford training in the methods of chemical research. They lead ultimately to the advanced degrees.

UNDERGRADUATE WORK

Students who expect to make Chemistry a profession should *major* in Chemistry and should either take a *minor* in Physics or at least two years' work in that subject. All such students are urged to consult the members of the Department of Chemistry in planning their collegiate courses. It is not possible within the limits of a three year course leading to the A.B. degree to give sufficient Chemistry to produce a thoroughly trained professional chemist. The student who has taken all of the undergraduate work possible will have sufficient training to enable him to teach Chemistry in secondary schools and should be able to do routine analytical work as a professional chemist. All students who intend to make Chemistry a profession are urgently advised to take at least one additional year of more advanced work in Chemistry.

Students intending to study Medicine should take as much work in Chemistry as possible. Courses 11, 13, 15, and 19 or

110 are essential. Courses 14 and 18 should be included, if possible. In fact, the subject of Physical Chemistry, course 18, is even now required for admission to some of the medical schools and is almost equally essential with the courses before mentioned. Attention is called to the statement regarding premedical courses under the announcement of the Department of Biology.

The attention of all students intending to enter undergraduate courses in Chemistry is called to the matter of the laboratory fees and breakage deposits on page 21.

GRADUATE WORK

It is the purpose of the Department of Chemistry to provide the graduate student with that broad training in the fundamental principles of Chemistry which shall adequately equip him for a subsequent scientific career. A considerable number of the students entering this department for graduate work will naturally look forward to an academic career. It is not intended, however, to provide training for such men alone, for the equipment for technical research, whether for public or private interests, requires equally a thorough familiarity with the underlying principles of science and with the methods of experimental investigation. Whether a student shall devote himself to pure or to technical research is a matter of individual interest and inclination rather than of training. The purpose of the department is to provide the training on lines sufficiently broad to enable the student to exercise a choice between technical and purely scientific work.

It is intended that the list of courses primarily for graduate students will be covered in a period of three years.

Courses 213, 214, 31, 32, 33, 34, 311, 312, and 314 are given during 1921-22.

Courses 214, 31, 32, 33, 36, 38, 39, 310, 312, and 314 will be offered during 1922-23.

The above courses are open to graduate students who have had the requisite preliminary training, which includes Mathematics through the calculus, at least two years of work in Physics, and the standard undergraduate courses in Chemistry.

LABORATORIES AND EQUIPMENT

The Department of Chemistry occupies the north half of the Science Building, the two lower floors being devoted chiefly to the undergraduate laboratories and the upper floor to the

graduate research laboratories. In addition, two rooms in the basement of the Main Building are occupied by the Department as graduate research laboratories.

Separate laboratories are provided for work in general, analytical, organic, and physical Chemistry, in addition to rooms for furnace work, combustions, weighing, preparations, and a dark room for photo-chemical work. The laboratory is well equipped with all necessary apparatus for undergraduate work in Chemistry, while proximity to the graduate research laboratories renders available for undergraduate use and demonstration some forms of apparatus not ordinarily found in the smaller college laboratories.

The graduate laboratories, which are devoted exclusively to research, are exceptionally well equipped for work in organic, inorganic, and physical Chemistry.

The Department is provided with a shop which is fully equipped for carrying out any mechanical work necessary in connection with the various investigations in progress in the laboratory, and the services of a skilled mechanic are available. The Department also has a very complete equipment of various physical and physical-chemical apparatus to be used in research work, and a very complete supply of materials of all kinds.

In addition to the equipment of permanent apparatus available, the Department is always ready to purchase special apparatus or materials as required for research purposes.

Graduate students in the Department of Chemistry are required to make a deposit of twenty-five dollars with the Bursar at the beginning of the year. Ordinary supplies and materials will be charged to the student's account at cost, but special materials and apparatus for research purposes will be supplied by the Department. Balances will be refunded at the end of the year.

ADVANCED DEGREES AND RESEARCH

The requirements for advanced degrees cannot be met by the mere pursuit of a course of studies nor by the mere execution of a research. For this reason no definite course of graduate studies is outlined, but the student is expected to carry such courses as will enable him to acquire a comprehensive knowledge of the subject of Chemistry during the course of his residence at the University. In general, the courses of instruction and

the research work are designed to enable a student to complete his training in a period of three years, provided, however, that he has the necessary preliminary training prior to undertaking his graduate work and that he possesses the necessary aptitude in his chosen field of work. Students who are not fully prepared for graduate work will be required to make up any deficiencies either before undertaking graduate work or while at the same time taking a limited amount of graduate work. In such cases it is to be expected that the time necessary to obtain an advanced degree will be correspondingly extended.

All students registered for advanced degrees are expected to devote not less than thirty hours per week to laboratory work. In the case of a student working for a Master's degree a portion of his time may be devoted to special laboratory work in organic, inorganic, and physical Chemistry. In the case of students preparing for the Doctor's degree not less than thirty hours per week or five hours per day shall be devoted to research work under such conditions and regulations as may be prescribed by the Director.

Graduate scholarships and fellowships are available for students in this department. See pages 22-25.

RESEARCH FACILITIES FOR MEN NOT CANDIDATES FOR DEGREES

The facilities of the graduate laboratories are open to such men as have the interest and the ability necessary for undertaking research on their own responsibility. Such men will, in general, already have received the Doctor's degree and will be interested primarily in research for its own sake. It is the purpose of the department to encourage men of this type whenever possible, and every facility will be afforded such investigators for the purpose of carrying out their investigations.

COURSES IN CHEMISTRY

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL CHEMISTRY, chiefly inorganic. Systematic study of the elements and their principal compounds, and the fundamental laws and theories of Chemistry. Three lectures, and six hours of laboratory work per week.

Four hours, through the year.

PROFESSOR MERIGOLD AND ASSISTANTS

12. GENERAL CHEMISTRY. This course is arranged to suit the needs of those students who have had no previous chemical training and who have no present intention of pursuing the subject farther. As broad a view as possible of Chemistry is imparted; general theoretical principles are discussed, but much attention is paid to the applications of Chemistry to daily life. Two lectures or recitations, and three hours of laboratory work per week.

Three hours, through the year.

Omitted in 1921-22. To be offered in 1922-23.

13. QUALITATIVE ANALYSIS. Basic and acid. Chiefly laboratory work, nine hours per week. Occasional lectures and recitations upon the theories involved.

Three hours, through the year.

PROFESSOR WHITE AND ASSISTANTS.

14. QUANTITATIVE ANALYSIS. Chiefly laboratory work, with occasional lectures, recitations, and problems. A carefully selected series of quantitative determinations, designed to give the student as wide a range as possible of typical methods of quantitative manipulation, both gravimetric and volumetric. Six hours of laboratory work, and one lecture per week. Open only to those who take or have taken course 13.

Three hours, through the year.

PROFESSOR MERIGOLD

15. ORGANIC CHEMISTRY. Systematic study of the compounds of carbon and their applications to the arts. Three lectures per week. Open to all who have taken course 11 or its equivalent.

Three hours, through the year.

PROFESSOR WHITE

16. ADVANCED QUANTITATIVE ANALYSIS (including Gas Analysis). Open only to students who have taken course 14. This course is intended to give a more comprehensive knowledge of quantitative analysis than can be obtained in an elementary course. It is primarily intended for those who expect to specialize in Chemistry, and may also be taken with advantage by those who intend to study Medicine. The laboratory work will be varied, if desired, to meet the needs of individual students. Occasional lectures treat the subject systematically from both practical and theoretical standpoints. Laboratory work, nine hours per week.

Three hours, through the year.

PROFESSOR MERIGOLD

18. PHYSICAL CHEMISTRY. Two lectures and three hours of laboratory a week, introducing the student to the principal chapters of modern chemical theory. To be admitted to this course, students must have passed Chemistry 11 and 14 and Physics 11. A knowledge of organic chemistry and calculus is desirable.

Three hours, through the year.

PROFESSOR MERIGOLD

19. BIOLOGICAL CHEMISTRY. This course is a modification of course 110, arranged for those students desiring some knowledge of the chemistry of foods, and for those intending to study Biology or Medicine. It is mainly laboratory work, consisting of a preliminary study of the general methods of organic chemistry, and further a study of proteins, carbohydrates, and fats, enzyme action, blood and urine analysis, etc. Nine hours of laboratory work a week. Open only to those who are taking or who have completed Chemistry 15. A knowledge of quantitative analysis is also desirable.

Three hours, through the year.

PROFESSOR WHITE AND ASSISTANTS

110. ORGANIC SYNTHESIS AND ANALYSIS. Laboratory work, consisting of the preparation of typical organic compounds, qualitative testing for the ordinary elements and organic groups, the quantitative determination of carbon, hydrogen, nitrogen, and the halogens. Course 110 should be taken, if possible, in connection with course 15. The work of this course requires nine hours of laboratory work per week. It is advisable for the student to take or to have taken course 14.

Three hours, through the year.

PROFESSOR WHITE AND ASSISTANTS

111b. INDUSTRIAL CHEMISTRY. The general, fundamental processes of plant operation will be described, and some of the most important manufacturing processes for the production of chemicals will be discussed in detail. Necessarily, a knowledge of the chemical principles underlying the industrial procedures will be required.

Three hours, second semester.

Omitted in 1921-22. Will not be offered in 1922-23.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

212b. HISTORY OF CHEMISTRY. A course of lectures accompanied by supplementary reading. This course is intended to cover the historical development of the science in both its practical and theoretical aspects. An attempt is made to give the student some knowledge of the individuality of the men whose work has resulted in the growth and development of modern Chemistry. Attention will be given also to the relation of Chemistry to other sciences at various periods of development.

Open to graduate students and seniors who take or have taken Chemistry 11 and 15 or equivalent courses.

Three hours, second semester.

PROFESSOR MERIGOLD

213a. ADVANCED ANALYTICAL CHEMISTRY. In this course will be considered special features of Analytical Chemistry, both practical and theoretical. The work will include such topics as special analytical methods with particular reference to sources of error, limits of accuracy, and theoretical considerations; preparation of pure inorganic materials and methods of exact analysis required in atomic weight work and fields of research necessitating precise analysis. Particular attention is paid to results of recent investigation in this field. Open only to students who take, or have taken, courses 16 and 18, or their equivalent.

Three hours, first semester.

PROFESSOR MERIGOLD

214. INTRODUCTION TO PHYSICAL CHEMISTRY. Following a discussion of the properties of matter, the principles underlying equilibria in chemical systems are developed. The fundamental thermodynamic functions are introduced, and their application to chemical problems is illustrated. The phase rule is derived, and application is made to the more common chemical systems. Equilibria in homogeneous and heterogeneous systems in which reactions occur are then treated, and the laws of dilute solutions are derived and discussed. This is followed by a brief treatment of systems in which surface forces must be taken into account. Finally are treated those systems in which the time enters as one of the fundamental factors governing the course of reactions. This includes a brief consideration of the action of catalytic agents. This course is open to graduate students and advanced undergraduates who already have the necessary foundation in Chemistry, Physics, and Mathematics. Lectures and conferences.

Three hours, through the year.

PROFESSOR KRAUS

3. PRIMARILY FOR GRADUATE STUDENTS

31. THEORETICAL CHEMISTRY. The fundamental principles underlying the transformations of matter are developed and applied to systems of one component. The relations among the various coefficients are derived, and applications are made to real systems. The characteristic functions of Gibbs are introduced and illustrated, and the laws governing equilibria are derived from general principles. The conditions for equilibrium in systems under the action of external forces are derived and applied to various cases.

Lectures *twice a week*, conferences *once a week*, through the year. PROFESSOR KRAUS

32. THEORETICAL CHEMISTRY. A continuation of the preceding course, in which systems of more than two components are treated. The conditions for equilibrium are derived. The phase rule is derived, and its application to certain particular cases is discussed. The general equations for the energy and entropy of a mixture are derived. Applications are made to dilute solutions as well as to particular cases of concentrated solutions. The conditions for equilibrium are derived for systems in which reactions take place among various constituents present. The equilibria in the case of gaseous reactions, both homogeneous and heterogeneous, are treated, and the Nernst Heat Theorem is developed and discussed. Lectures and conferences.

Twice a week, through the year. PROFESSOR KRAUS

33. ADVANCED INORGANIC CHEMISTRY. This course is offered for the purpose of meeting the wants of graduate students for a systematic development of the subject of Inorganic Chemistry. Instead of treating the subject from the standpoint of the relation of elementary substances in the periodic table, various substances are classified according to their properties. There are thus considered: 1, elementary substances; 2, metallic substances, including elements of compounds; 3, salts, including electrolytes generally; 4, non-saltlike substances, including a brief description of the properties of carbon compounds. This is followed by a study of various typical reactions, such as oxidation and reduction reactions, reactions at high temperatures, and reactions in non-aqueous solutions. This course is intended to extend over a period of from two to three years. Lectures and conferences.

Twice a week, through the year. PROFESSOR KRAUS

34. **THE PHASE RULE.** One component and the simpler two component systems are treated during the first year, and three component and the more complex two component systems are treated in the second year. The subject is treated as exhaustively as time permits. *Rooseboom* serves as a general text and is supplemented so far as possible by references to the original literature. Seminar extending over a period of two years.

Once a week.

PROFESSOR KRAUS

35. **THE PROPERTIES OF ELECTRICALLY CONDUCTING SYSTEMS.** The properties of electrical conductors are discussed, including electrolytic solutions, fused salts, and the metals. References are made to the original literature. Lectures and conferences.

Twice a week, through the year.

PROFESSOR KRAUS

Omitted in 1921-22.

36. **THE STRUCTURE OF MATTER.** This course is intended to correlate our knowledge of the structure of matter from a kinetic-molecular point of view. After treating the gaseous and liquid states of matter, the solid states of matter are discussed. This includes a consideration of the structure of crystalline substances, as derived from X-ray analysis. The nature of various chemical compounds is considered. The theories of Werner, Abegg, and the more recent theories of Thomson and others are discussed. Radioactive phenomena are then briefly considered, followed by a discussion of atomic structure and the relations between the various elements from a structural point of view. Lectures and conferences.

Twice a week, through the year.

PROFESSOR KRAUS

Omitted in 1921-22.

37. **PHOTOCHEMISTRY.** The effect of light on various chemical reactions is treated in its more general aspects. Lectures and conferences.

Once a week, one half year.

MR. PARKER

Omitted in 1921-22.

38. **EQUILIBRIA IN MIXTURES OF ELECTROLYTES.** The properties of mixtures of electrolytes are discussed, and the reactions in such mixtures are considered. These include, among others, hydrolytic reactions, as well as other ionic reactions, in

which new phases may or may not appear. Lectures and conferences.

Once a week, one half year.

PROFESSOR KRAUS

Omitted in 1921-22.

39. THE PROPERTIES OF DISPERSED SYSTEMS. The properties of dispersed systems are discussed with frequent references to the literature. Lectures.

Once a week, one half year.

MR. PARKER

Omitted in 1921-22.

310. THE TIME FACTOR IN CHEMICAL REACTIONS. The laws governing the rate of chemical reactions are developed, and the various factors governing the rate of reaction are considered. The effect of catalysts on the rate of reaction is considered, and the various hypotheses proposed for the action of catalytic agents are discussed. Lectures and conferences.

Once a week, through the year.

PROFESSOR KRAUS

Omitted in 1921-22.

311. THE PROPERTIES OF SOLUTIONS IN LIQUID AMMONIA. A study is made of the properties of solutions in liquid ammonia. This includes solutions of electrolytes, non-electrolytes, and the metals in ammonia, together with a study of the more important reactions taking place in liquid ammonia. Lectures and conferences.

Once a week, through the year.

PROFESSOR KRAUS

312. ADVANCED ORGANIC CHEMISTRY. Conferences are held at which the fundamental conceptions and problems of organic chemistry are dealt with in a systematic manner. Current literature, applicable to the subjects under discussion, is reviewed.

Twice a week, through the year.

PROFESSOR WHITE

314. RESEARCH CONFERENCE. By the staff of the Department of Chemistry. The work in progress in the laboratory is discussed in detail. Reports are expected to be made by all students engaged in research at least twice a year, and perhaps oftener.

Once a week, through the year.

DEPARTMENT OF EDUCATION AND SCHOOL HYGIENE

PROFESSOR BURNHAM, PROFESSOR SANFORD

The work of this department is in the closest connection with that in the Department of Psychology and largely based upon it. The aim is to give all students, both undergraduates and graduates, the opportunity for an introduction to the subject of Education as a universal culture interest; and prevision for the significant aspects of Education in the school and the community. Among those who plan to become teachers it aims also to develop professional interests and to give knowledge of sound principles and methods and of the best educational literature, as a preparation for practical school work.

GRADUATE WORK

To graduate students the department gives the opportunity for research in the problems of genetic pedagogy, child hygiene, mental hygiene, and the large problems of education in relation to industry and society. The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The work in this department is intended to meet the needs of the following classes of students:

First. Those intending to teach some other specialty but who wish a general survey of the history, present state, methods, and recent advances in the field of university, professional, and technical education.

Second. Those who desire to become professors of Pedagogy, heads or instructors in normal schools, superintendents, medical inspectors, or otherwise to become experts in the work of education.

Third. Those who wish to become students of the great problems of education and hygiene in relation to industrial and social development.

Courses in Psychology are open to properly qualified students in this department, and it is expected that those who have not had extended training in Psychology will take suitable courses in this subject.

THE DEPARTMENTAL LIBRARY

The library of the department has a large collection of educational literature, being especially rich in German and French

literature and having a large number of official reports from various countries.

Many of the more common educational books are accessible in the Worcester Public Library and have not been duplicated by the University. The large collection of text-books in the library of the American Antiquarian Society and its valuable historical material are also accessible to the University students.

The collection of educational periodicals includes a large number of the best foreign journals—English, French, German, etc.

THE EDUCATIONAL MUSEUM

The nucleus of an Educational Museum has been formed. This contains a valuable collection of educational apparatus, pictures, illustrative material for language lessons and *Anschauungsunterricht*, kindergarten material, maps, charts, diagrams, text-books, lantern slides, photographs, and illustrative material of various kinds in School Hygiene, History, Arithmetic, Language, the Natural Sciences; apparatus for the teaching of Arithmetic, abacuses of various kinds, charts for counting, reckoning machines, number tablets, weights, measures, geometrical models; toys from different countries, a number illustrating scientific principles in Physics, and the like. The collection includes charts illustrating good and bad posture, apparatus for insuring cleanliness, for testing the air, charts illustrating the incidence of school diseases, the effects of antitoxins, etc., and a sample collection of the antitoxins for the various diseases, samples of the latest hygienic seats and desks made under the direction of the Posture League; and the set of over fifty charts on School Health in the United States prepared by the Committee on School Health of the National Council of Education and the American Medical Association. This museum is located on the top floor of the Main Building.

COURSES IN EDUCATION AND SCHOOL HYGIENE

I. PRIMARILY FOR UNDERGRADUATES

No courses announced. See 28 below.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

23. PRINCIPLES OF EDUCATION. This course treats certain fundamental educational principles and involves an historical

25a Hist. of Science
Two hours, first semester

Mr. Sanford

study of several important chapters in Education. Such topics as the following will be included. Educational ideals. The interrelation of educational aims. The dominant aim at different stages of development. The correlation of educational forces. The family and education. The church and education. State aid and control. The scientific method in education. Antithetic educational principles. The history of nature vs. convention in education. Individualism vs. collectivism. The manifestation and influence of these educational ideals as illustrated in England, France, and Germany before the war and tested by the war. Rousseau, Pestalozzi, and other representatives of these principles. The present opportunity in education and the problems of educational reform and reconstruction. This course is primarily for graduates but with the consent of the instructor may be taken by undergraduates who have had a sufficient preparation in Psychology. One lecture per week.

One hour (or *two hours*, with prescribed reading), through the year.

PROFESSOR BURNHAM

Not to be offered in 1922-23.

28. THE TEACHING PROFESSION. Teaching as trade or learned profession. The evolution of the teacher's calling. The teaching body as a social group in relation to other economic and social groups. The social function of the teacher. Characteristics of the teaching body as a social group. The teacher and the parent. The teacher and the artisan. The teacher in the countries of antiquity, in China, India, Greece, Rome, etc. The medieval teacher. The teachers of the early Renaissance. The great schoolmasters of the Reformation. The reformers, Comenius, F. A. Wolfe, Pestalozzi, et al. The teaching profession in Germany. Fundamental principles concerning the training of teachers. The normal schools. The hygiene of teaching.

One hour. (or *two*, with prescribed reading), through the year. Open to qualified undergraduates.

PROFESSOR BURNHAM

See also Psychology 26b, EDUCATIONAL PSYCHOLOGY, page 134

3. PRIMARILY FOR GRADUATE STUDENTS

34. HIGHER EDUCATION IN THE UNITED STATES. After an historical survey of the influences which have molded higher

education in this country, the demands of the present day upon institutions of higher learning will be analyzed and methods of meeting them considered. Especial attention will be given to the distinguishing characteristics of college and university students and the needs peculiar to their stages of development.

One lecture and one conference period per week, through the year.

Not to be offered in 1922-23.

PROFESSOR SANFORD

36. **HYGIENE OF THE SCHOOL CHILD.** This course has been given in alternate years with the course on the Hygiene of Instruction. Some of the more important chapters in modern school hygiene will be considered, including such topics as: The conditions that determine growth and development, physiological age, the physical and mental differences between children and adults, the general principles of somatic and mental hygiene, the hygiene of the senses, modern studies of defects of sight and hearing, school diseases, the hygiene of the voice, the mouth, the teeth, the nose. Tests of ability to work and of physical condition. Medical inspection. The development of habits of healthful mental activity. The hygienic aspects of recent psychological studies.

Lectures one hour per week, through the year.

Not to be offered in 1922-23.

PROFESSOR BURNHAM

37. **THE HYGIENE OF INSTRUCTION AND THE PRINCIPLES OF MENTAL HYGIENE.** The topics considered include: The significance of stimulation in the development of the nervous system, the development of associated stimuli and conditioned reflexes. The conditions of efficient brain activity. The general principles of mental hygiene. The effects of drug stimuli, alcohol, tobacco, caffeine, and the like. Fatigue. The period of study. Recesses. The optimum conditions of school work. The hygienic aspects of examinations, discipline, and punishment. The relations of discipline to mental hygiene. The hygiene of different subjects of school instruction.

One hour per week, through the year. PROFESSOR BURNHAM

39. **SEMINAR.** The work is determined largely by the needs of the students who take this course. It is expected that each member of the seminar will select some subject for special investigation, either in the field of Education or School Hygiene. A coöperative method is used so that each student may profit by the work of all of the others.

One and a half or two hours per week, through the year.

PROFESSOR BURNHAM

DEPARTMENT OF ENGLISH

PROFESSOR AMES, PROFESSOR DODD

Prescribed work in English consists of English 11, required of all freshmen, and six semester hours in English Literature, required of all students, to be completed by the end of the Junior year. English 111 is elective for all freshmen, and English 13 and 18 for freshmen who expect to make English their *major*. All courses except English 11 are elective for both juniors and seniors. A *major* in English consists of twenty-four semester hours, including English 11; a *minor* of eighteen semester hours, including English 11.

COURSES IN ENGLISH

I. PRIMARILY FOR UNDERGRADUATES

11. ENGLISH COMPOSITION. The course aims through constant practice in composition and the reading of literature to give the student greater facility in written expression.

Three hours, through the year.

PROFESSOR DODD

13b. THE DRAMA. This is primarily a course in Shakespeare. Seven of Shakespeare's plays are studied, and dramatic readings of selected scenes are given by the students in the classroom. For collateral reading, which is required throughout the semester, the student may elect further reading in Shakespeare or a brief course in the most important of the modern dramatists.

Three hours, second semester.

PROFESSOR AMES

14. THE NOVEL. A reading course beginning with the novel in the time of Shakespeare and ending with that of our own day.

Three hours, through the year.

PROFESSOR DODD

Not to be offered in 1922-23.

16a. ENGLISH COMPOSITION. A second-year course in writing, for students who have completed English 11. The first half of the course is devoted chiefly to practice in exposition. Various forms of expository writing are studied, and weekly or fortnightly themes required. The latter half of the course the

student may adapt to his aptitudes and needs by electing for special practice exposition, argumentation, or narrative.

Three hours, first semester.

PROFESSOR AMES

17a. **DRAMATIC EXPRESSION.** A course designed to aid the student in developing powers of dramatic expression.

Three hours, first semester.

PROFESSOR DODD

18b. **THE BIBLE.** This course aims to stimulate an intelligent appreciation of the Bible as literature. It consists of an interpretation chiefly of the Old Testament, its history and epic, poetry and oratory, philosophy and prophecy.

Three hours, second semester.

PROFESSOR AMES

120a. **BIOGRAPHY AND LETTERS.** A study of the biography, autobiography, and correspondence of distinguished authors and artists from the eighteenth century to the present day.

Three hours, first semester.

PROFESSOR DODD

New course to be offered in 1922-23.

19. **ENGLISH LITERATURE FROM THE REIGN OF QUEEN ANNE TO THE ACCESSION OF QUEEN VICTORIA.** A general survey of the period between 1700 and 1830, with readings from Addison, Steele, Defoe, Swift, Pope, Fielding, Sterne, Johnson, Boswell, Goldsmith, Burke, Burns, Wordsworth, Coleridge, Byron, Keats, Shelley, Scott. Collateral readings in minor writers.

Three hours, through the year.

PROFESSOR AMES

New course, to be omitted in 1922-23.

110a. **NINETEENTH CENTURY POETRY.** A brief study of the works of Tennyson and Browning, with collateral reading in other poets of the nineteenth century and in the more notable poets of the present.

Three hours, first semester.

PROFESSOR AMES

III. **AMERICAN LITERATURE.** This course is designed to afford a comprehensive survey of American Literature. Most of the year is devoted to an interpretation of the prose and poetry of the nineteenth century. Besides definite prescriptions of reading, additional collateral reading is required throughout the course. In the latter the student may choose from a wide variety of essays, fiction, poetry, and biography, including the best work of the writers of today. The course may be elected for the year or for the first semester only.

Three hours, through the year.

PROFESSOR AMES

112. NINETEENTH CENTURY ESSAYS. This course, while aiming to acquaint the student with the modern masters of prose, is intended primarily as an introduction to those movements of modern thought that achieve expression in the prose literature of the nineteenth century. Among the essayists read are Lamb, De Quincey, Macaulay, Carlyle, Emerson, Thoreau, Mill, Ruskin, Morris, Arnold, Newman, Pater, Huxley, Tyndall, John Fiske. Opportunity is given for appropriate collateral reading in fiction and poetry, and in essayists of the present day. The course may be elected for the year or for the first semester only.

Three hours, through the year.

PROFESSOR AMES

FINE ARTS 11b. A general course in the appreciation of the arts: painting, sculpture and architecture.

Three hours, second semester.

PROFESSOR DODD

DEPARTMENT OF GEOGRAPHY

PROFESSOR ATWOOD, ASSOCIATE PROFESSOR BROOKS, MISS SEMPLE, MR. JAMES
MRS. THOMAS, MR. NOVAKOVSKY, MR. RIDGLEY

A complete statement of the aims and the scope of the courses in Geography and the related subjects, Physiography, Meteorology, and Climatology, will be found in the announcement of the Graduate School of Geography, on pages 49-56.

DEPARTMENT OF GEOLOGY

PROFESSOR LITTLE

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

21. GENERAL GEOLOGY. A careful study of the materials which compose the earth's surface; the structure of the earth; the physical processes by which the surface is modified, and the land forms resulting from this modification. The geological history of the earth; paleogeography, or the study of the geographical environments of the past; the evolution of life, as recorded in fossil remains. A certain amount of laboratory work will be required in addition to the three regular class meetings each week.

Three hours.

MR. LITTLE

22. REGIONAL GEOLOGY. An advanced study of geology for those who have satisfactorily completed course 21 or an equivalent. Certain regional units will be studied in detail. The geologic

history will be examined, and the relation of this to the present land forms will be shown. Prerequisite: 21.

Three hours, second semester.

MR. LITTLE

3. PRIMARILY FOR GRADUATE STUDENTS

31. ECONOMIC GEOLOGY. The study of the origin and manner of occurrence of nonmetallic substances such as coal, petroleum, and phosphates; and metallic substances such as iron, copper, gold, etc. A previous knowledge of general Geology is required for this course. Prerequisite: 21 or equivalent.

Three hours, second semester.

MR. LITTLE

DEPARTMENT OF GERMAN

PROFESSOR RANDOLPH

The reaction against things German when the United States entered the war resulted in a considerable restriction of the activities of this department. The present aim is to provide above all things a course of instruction which shall fit students to read standard German prose with accuracy and ease.

German 12, or French 12, or the equivalent of one of these (see the statement of the general requirement in foreign language, page 36) is required of all students who entered the College earlier than September 1921.

Courses 11, 12, and 16 are offered for 1922-23.

COURSES IN GERMAN

I. PRIMARILY FOR UNDERGRADUATES

11. ELEMENTARY GERMAN. Drill in pronunciation and grammar; composition; reading of easy prose.

Three hours, through the year.

PROFESSOR RANDOLPH

12. SECOND YEAR GERMAN. Review of grammar, with composition; the reading of several easy pieces of modern prose. The course is a continuation of German 11.

Three hours, through the year.

PROFESSOR RANDOLPH

13. INTERMEDIATE GERMAN. Review of grammatical and syntactical principles; composition and themes; reading of modern prose; careful drill in pronunciation; conversation. Modern fiction, essays, and magazine articles are read. Open to students who have passed German 12 or its equivalent.

Three hours, through the year. Omitted in 1921-22.

15. READINGS FROM GERMAN CLASSICS. Lessing, *Minna von Barnhelm*, *Emilia Galotti*; Schiller, *Maria Stuart*, *Wilhelm Tell*; Goethe, *Hermann und Dorothea*, *Egmont*, *Iphigenie*; the shorter poems of Schiller and Goethe. The principal critical writings of Lessing, Herder, Goethe, and Schiller are discussed by the instructor. Attention is also paid to the development of dramatic form. Parallel course to German 13, with which it might well be taken in conjunction.

Three hours, through the year.

Omitted in 1921-22.

16. SCIENTIFIC GERMAN. Lassar-Cohn, *Die Chemie im täglichen Leben*; Greenfield, *Technical and Scientific German*. The course is designed especially for men *majoring* in science, but the subject matter includes much of interest to the casual student. Prerequisite, the first semester of German 12 or its equivalent.

Three hours, through the year.

PROFESSOR RANDOLPH

17b. GERMAN LITERATURE OF THE FIRST HALF OF THE NINETEENTH CENTURY. The political-social history of the period as reflected in the literature of Romanticism, of the Freiheitskrieg, of Young Germany, the Swabian School, and Heine. Brandes, *Main Currents*, and Ziegler, *Die geistigen und sozialen Strömungen des 19. Jahrhunderts*, are taken as guides. Collateral reading in Priest's *Germany since 1740* and Francke's *History of German Literature*.

Three hours, second semester.

Omitted in 1921-22.

18. ADVANCED READING AND CONVERSATION. The course takes up through the medium of suitable German texts a variety of topics designed to acquaint the student with essential facts about Germany and the German people. About a third of each recitation hour is devoted to conversation in German. Open to men who have had at least three years of work in the language.

Three hours, through the year.

Omitted in 1921-22.

DEPARTMENT OF HISTORY AND INTERNATIONAL RELATIONS

PROFESSOR BLAKESLEE, PROFESSOR BARNES, PROFESSOR BRACKETT
PROFESSOR GETTELL,* MR. FISH

UNDERGRADUATE WORK

The aim of the department in its undergraduate work is to give in its several courses a broad knowledge of the more significant aspects of the growth of the leading countries of the world. This includes the study not only of the important facts, but more especially of the processes of development in government, diplomacy, society, business, religion, science, and education. The courses are not limited to a consideration of Europe and the United States, but include the progress and present-day conditions of the leading countries of South America, Asia, and Africa. While the work is designed primarily to give a cultural knowledge of general world affairs, many of the courses are of especial value to those who are preparing to teach, or to enter the field of law, theology, social service, or government.

The following courses are planned primarily for undergraduates. For a description of these, as well as additional courses open to undergraduates under restrictions, see pages 99-101, 104-106.

11. MEDIEVAL HISTORY. Professor Blakeslee.
13. INTERNATIONAL RELATIONS. Professor Blakeslee.
14. THE DEVELOPMENT OF AMERICAN SOCIETY. Professor Barnes.
15. ENGLISH HISTORY.
16. POLITICAL HISTORY OF MODERN EUROPE. Professor Barnes.
17. INTERNATIONAL LAW. Professor Blakeslee.
19. HISTORY OF GREECE AND ROME. Professor Brackett.

Course 11, primarily for freshmen, is open to both juniors and seniors; courses 13, 16, 19 are elective for all; courses 14, 15, and 17 are designed for juniors and seniors, and may be taken by freshmen only by special permission.

PREPROFESSIONAL PROGRAMS

The following special programs are recommended to those students who enter upon their undergraduate work with the

*Visiting professor, first semester, 1921-22.

definite intention of preparing for the consular and diplomatic service, or for teaching History in secondary schools. These programs, while permitting a considerable degree of concentration, are intended to conform to the requirements of the College for the A.B. degree.

CONSULAR AND DIPLOMATIC SERVICE

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
History 11	Pol. & Soc. Sci. 12	History 17
Pol. & Soc. Sci. 11	Pol. & Soc. Sci. 13 & 24	History 14
Modern Language	History 13	Pol. & Soc. Sci. 215
English 11	History 16	Modern Language
Elective in Science	Modern Language	Geography 234 & 244
Geography 111		Geography 235 & 264

The two following programs are typical of many which may be arranged to meet the needs of those who plan to enter high school teaching as a profession.

HISTORY AND POLITICAL SCIENCE

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
History 11	History 13	History 14
History 19	History 215	History 216
Pol. & Soc. Sci. 11	Psychology	History 17
English 11	Foreign Language	Pol. & Soc. Sci. 216
Biology	Elective in Pol. & Soc. Sci.	Pedagogy
Foreign Language	Elective in English	Geography 234 & 264

ENGLISH AND HISTORY

FRESHMAN YEAR	JUNIOR YEAR	SENIOR YEAR
English 11	English 16	Pol. & Soc. Sci. 216
English Elective	Psychology	Pedagogy
History 11	Foreign Language	For. Lang. or Sci.
Biology	English Elective	Elective in English
Foreign Language	History 15	Elective in History
		Elective

GRADUATE WORK

The distinctive feature of the graduate work is the emphasis it places upon the various aspects of International Relations and of Social and Intellectual History. Without neglecting scholarly investigation in the economic, political, and social life of preceding centuries, it seeks to know the past primarily in order to understand the present; to learn from a study of their historical evolution how the various nations and races have developed the characteristics and culture which mark them today; to gain a sympathetic appreciation of the best in other civilizations; and to evaluate correctly the problems and the difficulties constantly arising in the inter-

national relations and diplomacy of the family of states. The field includes not only the United States and the nations of Europe, but also the newer and rapidly developing states of Asia, Latin America, and Africa. Political development is regarded as of no greater importance than diplomatic, intellectual, economic, and social progress.

INTERNATIONAL RELATIONS

In carrying out these features of its work, the department has arranged occasional conferences for the discussion of the international relations of various lands. In 1909 the sessions dealt with the Far East, including China, India, the Philippines, and Hawaii; in 1910, the Near East and Africa; in 1911, Japan and Japanese-American relations; in 1912, Recent Developments in China; in 1913, Latin America; in 1915, the Problems and Lessons of the World War; and in 1920, Mexico and the Caribbean. Altogether nearly two hundred men have taken part in these conferences—university professors, anthropologists, government officials, officers of the army and navy, travelers, missionaries, and representatives of the countries under discussion—all of whom could speak with authority. The University students are enabled not merely to read the addresses and papers, which are issued in a series of bound volumes, but to listen to and meet these men who are both writing and making present-day history.

The *Journal of International Relations* is another means for emphasizing present historical values. Published quarterly by the University, under the editorship of Professors Blakeslee and Barnes, assisted by a board of twenty-seven contributing editors, the majority of them from the faculties of other institutions, it is a forum for the discussion of the problems which relate to the international relations of states. It is of frequent service to the work of the department, for it publishes from time to time articles and theses of advanced students, which show particular excellence.

HISTORY OF THOUGHT AND CULTURE

In addition to special attention to international relations, the department aims particularly to emphasize the more progressive tendencies in historical studies. Ample provision is made for work in social and intellectual history. By combination with related courses in other departments the students will be able to secure adequate instruction in the history of education and in

the history of science and technology, a field now being cultivated by progressive scientists and historians alike. Several courses in sociology are of special significance for students of social history in providing them with the facts of social evolution and the technique of sociological investigation.

FELLOWSHIPS IN HISTORY AND INTERNATIONAL RELATIONS

A Fellowship in American History, known as the American Antiquarian Society Fellowship, has been established by members of the American Antiquarian Society. It has a value of four hundred dollars in addition to remission of tuition fees.

The subject of research chosen by the Fellow for his Doctor's thesis should be selected within the field of American History before 1880, the period in which the Library of the American Antiquarian Society is of greatest assistance to historical investigators. In addition to the society's valuable manuscripts of the Colonial period, it has an unequaled collection of books printed in America in the early period and of American newspapers from 1660 to 1860.

The holder of this Fellowship for 1921-22 is writing his dissertation upon "The Influence of the Loyalists upon Canadian-American Relations."

Regular University Fellowships and Scholarships are also available for students in this department.

THE DOCTORATE

The various courses offered in the department are so arranged, in cycles of two or three years, that students working for their doctorate will be enabled to secure a full program each year. Those taking History as a *major* are advised to elect their *minor* either in Geography or in Sociology. In addition to the regular courses, a feature of the method of instruction in the department is the frequent informal conferences between instructor and student.

GENERAL COURSES IN HISTORY

I. PRIMARILY FOR UNDERGRADUATES

II. MEDIEVAL HISTORY. The period covered is from the fall of Rome to the French Revolution. The course serves as a general introduction to further historical study. The aim is to give a clear and accurate picture of the life and of the great movements of the medieval and early modern period. Political details

and the memorizing of names and dates are avoided so far as is practicable, and stress laid upon social conditions, country and city life, the rise of commerce and industry, intellectual and religious development, and general medieval culture. Some of the leading topics are the Germanic invasions, feudalism, the rise of the papacy, the rise of modern nations, the crusades, and the Renaissance and Reformation. One of the objects of the course is to introduce the student to as large a number as possible of the standard writers upon the period, and to induce him to come to independent conclusions upon disputed questions. The textbook is supplemented by lectures and extended collateral readings. The course is open to all undergraduates.

Three hours, through the year.

MR. FISH, first semester

PROFESSOR BLAKESLEE, second semester

14. THE DEVELOPMENT OF AMERICAN SOCIETY. This course endeavors to present the history of the United States from the standpoint of the newer tendencies in historical interpretation. It deals primarily with the economic and social factors in American development, and indicates the manner in which the political and constitutional growth has been a reflection of these deeper forces. The topics about which the course is organized for study and discussion are: (1) the expansion of Europe and the colonial movement; (2) the economic and social background of American independence and the federal constitution; (3) the triumph of Jeffersonian democracy; (4) the coming of the Industrial Revolution, the westward movement and the rise of Jacksonian democracy; (5) the economic and social factors in the sectional struggle and the Civil War; (6) the economic and social results of the period of the Civil War and reconstruction, and the rise of the plutocracy and *laissez-faire*; (7) the rise of various movements designed to secure economic, social, and political reform through voluntary activity or the increase of state control; (8) the economic and social phases of modern imperialism and the World War; (9) the evident results of the World War on the United States. Lectures are supplemented by class-room reports and discussion. The outline for the course is provided in Max Farrand's *Development of the United States* and Schlesinger's *New Viewpoints in American History*. Open to juniors and seniors.

Three hours, through the year.

PROFESSOR BARNES

Omitted in 1921-22.

15. **ENGLISH HISTORY.** A general course in English history. Particular emphasis is laid upon the larger developments and tendencies, such as the formation of the English nation; the national organization of the feudal monarchy; the origin of representative government; the commercial revolution and the attendant political, intellectual, and religious movements; the political revolution of the seventeenth century, the triumph of parliament, and the rise of the cabinet system; the colonial and imperial problems of the eighteenth century; the industrial revolution and the resultant development of nationalism, democracy, and imperialism. Lectures, discussions, and reports. Open to juniors and seniors.

Three hours, through the year.

Omitted in 1921-22.

16. **THE POLITICAL HISTORY OF MODERN EUROPE.** This course continues History 11. The main emphasis is laid upon the following topics: The development of the national monarchies; the growth of the middle class, and the English and French revolutions; restoration, reaction, and the system of Metternich; the development of constitutional government and the growth of political democracy; the completion of the national state system; the growth of national imperialism; and the political aspects of the World War and reconstruction. Text-book, readings, and lectures.

Three hours, through the year.

PROFESSOR BARNES

19. **HISTORY OF GREECE AND ROME.** The first semester is devoted to the history of Greece, the second to the history of Rome. The course aims to place the principal emphasis upon the characteristic elements of these civilizations and the contributions which they made to modern civilization. The course is conducted by the use of a text-book, by assigned readings, lectures, and discussions. Open to all undergraduates.

Three hours, through the year.

PROFESSOR BRACKETT

Omitted in 1921-22.

COURSES IN INTERNATIONAL RELATIONS

I. PRIMARILY FOR UNDERGRADUATES

12b. **THE FAR EAST.** The lectures deal with Japan, its colonies, Formosa and Korea, and its foreign policy; Manchuria and Siberia, including the history and present status of the struggle

for their control; China and its recent revolutions; the Philippines and Hawaii; and the general international politics of the Far East. In 1922 a careful study was made of the Washington Conference on the Limitation of Armament, its organization, problems, accomplishments, and probable effect upon the various countries of the Pacific area.

Three hours, second semester.

PROFESSOR BLAKESLEE

13. INTERNATIONAL RELATIONS. The group of countries taken for especial study has varied from year to year. The course consists mainly of lectures, but students are expected to read extensively in assigned works, and to prepare two class theses. Open to all undergraduates.

Three hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

17. THE ELEMENTS OF INTERNATIONAL LAW. An introductory course for qualified undergraduates. The various topics and legal principles presented are illustrated by such recent or pending international controversies as those arising from the United States claims against the Mexican government, the attempted extradition of the Kaiser, the claimed territoriality of Hudson Bay, the exemption of American coastwise shipping from Panama Canal dues, the California anti-Japanese legislation, the British black list, the seizure of the Dutch ships in 1917; and by such leading cases from the World War as those of the Appam, Frye, Wilhelmina, Dacia, Captain Fryatt, and Edith Cavell. A number of the significant and unsettled international law cases are argued by the members of the class as if before the Hague Court. The text-book is supplemented by lectures, class discussions, reports, and the study of the important cases in such collections as those by Scott, Evans, and Stowell and Munro. Open to juniors and seniors.

Three hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

21. THE HISTORY OF AMERICAN DIPLOMACY. A general course treating of the international relations of the United States from its beginning as an independent nation to the present day. It traces the gradual development of American foreign policy, points out its distinctive features, and shows how it has differed

from the diplomacy of other countries. A familiarity with the standard books in the field is expected, and frequent reference made to such source material as Moore's *Digest* and *Arbitrations* and the *Foreign Relations of the United States*.

Two hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

23. BRITISH COLONIES AND DEPENDENCIES. A survey of the important political, economic, and social conditions in the leading British possessions, especially Canada, Australia, New Zealand, India, and Egypt; and a discussion of British colonial policy and problems.

One hour, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

24. THE EXPANSION OF EUROPE. This course aims to indicate the importance of the contact of European culture and institutions with those of the world at large for the development of European civilization in modern times. The course is organized about a study of: The commercial revolution and the period of the discoveries; the Europeanization of America and the early contacts with the Far East; the reaction of the processes of discovery and colonization upon European life and thought; the decline of the older mercantilist imperialism; the industrial revolution and the rise of modern national imperialism; the partition of Africa and the European exploitation of Oceania and the Far East; the reaction of the contact with Africa and the Far East upon European culture and institutions. Designed to furnish a general introduction to a more intensive study of modern imperialism and international relations. Lectures, and assigned readings, based on Abbott's *Expansion of Europe*, Keller's *Colonization*, Muir's *Expansion of Europe*, and the more detailed treatises dealing with special areas and topics.

Two hours, through the year.

PROFESSORS BLAKESLEE AND BARNES

Omitted in 1921-22.

219a. POLITICAL BASIS OF THE MODERN INTERNATIONAL ORDER. A consideration of the origins and nature of the present national-state system, and its bearing on the problems of international relations and world peace.

Two hours, first semester.

PROFESSOR GETTELL

Not to be offered in 1922-23.

234b. **LATIN AMERICA.** A course for graduate students and advanced undergraduates, who are expected to read widely and do a large amount of independent work. A survey of the history of the various Latin American countries is followed by a consideration of international diplomacy, political problems, systems of government, race questions, and economic and industrial conditions. Emphasis is placed upon the relations, both in trade and diplomacy, between the United States and the countries of Latin America. Present problems are stressed: The Monroe Doctrine; Pan-Americanism; the Panama Canal; the treaty with Colombia; the Mexican issue; the American administration of Haiti, Santo Domingo, and the Virgin Islands; the effect of the World War upon the various Latin American republics, and their present attitude towards world organization and the League of Nations.

Two hours, second semester.

PROFESSOR BLAKESLEE

3. PRIMARILY FOR GRADUATE STUDENTS

31. **INTERNATIONAL LAW.** A general course adapted for graduate students who will do a large amount of independent reading. While the course aims to give a knowledge of the general principles of international law, it presents the subject with especial reference to the events and the outcome of the recent war, and discusses the problem of modifying the present rules of international law to meet changed world conditions. Considerable attention is also given to unsettled legal questions other than those of the war, such as those now pending between this country and Mexico. The lectures are supplemented by discussions and by a study of the leading text writers and of cases, especially those of historic importance. The students are expected to read widely, not only in the cases collected by Scott, Evans, and Stowell and Munro, but in Moore's *Digest* and *Arbitrations*.

Three hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

32. **RECENT INTERNATIONAL RELATIONS OF THE UNITED STATES.** A specialized course presenting a survey of recent events and tendencies in the foreign relations of the United States. The reversal of attitude towards other important powers, from the Civil War to the opening of the World War, will be explained: The strong friendliness for Germany changing to dislike and fear by 1913; the hostile feeling towards France gradually turning

to the former traditional sympathy; the open antagonism towards Great Britain becoming a warm friendship during the Spanish War; and the paternal fondness for Japan being replaced by the growing suspicion developed since the Russo-Japanese War. Other topics will include: The expansion of the sovereignty and power of the United States both in the Caribbean and the Pacific Ocean; the increasing participation of the United States in the international politics of the Far East, and its growingly important part in world affairs since the Spanish War. The latter part of the course will deal with the diplomatic history of the United States during and since the World War.

Two hours, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

33. THE EXPANSION AND THE COLONIAL POLICY OF THE UNITED STATES. The history of the successive territorial acquisitions of the United States is traced, including the diplomatic negotiations and the relations with foreign powers. This is followed by a study of the constitutional questions involved, especially those regarding the status of newly acquired possessions and of present-day dependencies; the differences between incorporated and unincorporated territory; and the rights and privileges of inhabitants and citizens of the various lands considered. The aims and the continuity of the American colonial policy are pointed out; and the governmental systems described for the Philippines, Hawaii, Porto Rico, Alaska, Guam, Tutuila, and the Virgin Islands.

One hour, through the year.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

34. THE WASHINGTON CONFERENCE ON THE LIMITATION OF ARMAMENT AND THE INTERNATIONAL RELATIONS OF THE FAR EAST. A study of the Washington Conference and its results, including: the treaty for the Limitation of Armament and its effect upon sea power in the Pacific; the Four Power Treaty and the Anglo-Japanese Alliance; the treaties and agreements affecting China, including the Shantung Treaty between China and Japan; the problem of Eastern Siberia; and the general effect of the Conference upon the international situation in the Pacific area. Other topics include: China—political and economic situation; Japan—recent industrialization and growth of political liberalism;

Korea—Japanese administration and the recent revolution; and the islands of the Pacific, with emphasis upon the mandated islands.

Two hours, second semester.

PROFESSOR BLAKESLEE

Not to be offered in 1921-22.

35. THE INTERNATIONAL RELATIONS OF THE PACIFIC. The course deals with the islands of the Pacific Ocean, especially those formerly in the possession of Germany, and emphasizes the interests of the United States. Among the topics presented are: The early period of sandalwood, beachcomber, and whaleships; American trade, exploration, and missionary activity; the general indifference of Europe to colonies during the first three quarters of the nineteenth century; the gradual rise of the colonial spirit; rivalry between Germany and the Australian commonwealths; the "scramble" for the Pacific in 1884; Germany's colonial empire; the characteristics of Germany's colonial administration; Pacific island possessions of the United States; Japan's colonial aims and policy; naval bases and strategic centers; economic and commercial values; the World War in the Pacific; the settlement at the Paris Conference; mandatories and the future.

One hour.

PROFESSOR BLAKESLEE

Omitted in 1921-22.

310. BASIC FACTORS IN INTERNATIONAL RELATIONS. A study of the chief factors affecting modern international relations, such as race, population, geographic environment, economic resources, historical tradition, nationality, and diplomatic usages.

Two hours, first semester.

PROFESSOR GETTELL

Not to be offered in 1922-23.

36. SEMINAR. The students in the Department of History and International Relations meet one evening a week for the consideration of particular topics in international relations and for the review of book and magazine material of especial value. Each member is expected to present reports which then form the basis for a general discussion.

During the first semester of the present year the social and economic results of the World War were studied. During the second semester attention was devoted chiefly to the Disarmament Conference and its problems.

In studying these problems arising out of the war the Seminar

is fortunate in having at hand the excellent war collection of the University Library, the second largest in the country, which already numbers between seven and eight thousand volumes.

PROFESSORS BLAKESLEE AND BARNES

RELATED COURSES IN OTHER DEPARTMENTS

PHYSIOGRAPHY [Geography 111]. Professor Atwood.

REGIONAL GEOGRAPHY OF NORTH AMERICA [Geography 216]. Professor Atwood.

CLIMATES OF THE WORLD [Geography 226]. Associate Professor Brooks.

GENERAL PRINCIPLES OF ANTHROPOGEOGRAPHY [Geography 234]. Miss Semple.

GEOGRAPHY OF EUROPE [Geography 235]. Miss Semple.

REGIONAL GEOGRAPHY OF SOUTH AMERICA [Geography 244]. Mr. James.

ECONOMIC GEOGRAPHY OF EUROPE [Geography 264]. Assistant Professor Hilmer.

COMPARATIVE GOVERNMENT [Government 12b].

COURSES IN THE HISTORY OF THOUGHT AND CULTURE

1. PRIMARILY FOR UNDERGRADUATES

No courses announced.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

215. THE ORIGINS OF EUROPEAN CIVILIZATION. A general survey of the evolution of European society to 1500 A.D. It emphasizes the following phases of this subject: The anthropological, archæological and sociological background of history; the "pre-historic" basis of European society; the rise and culture of the empires of the near Orient; classical civilization in its economic and social aspects; north European culture before the fifth century A. D.; the amalgamation of Roman, Celtic, Christian, and barbarian elements in the medieval period; medieval agrarian and town life; and the preparation for the expansion of Europe and the development of modern civilization. Text-books, readings, and lectures. This and the following course are based upon the outline provided in Barnes's *Social History of the Western World*. Open to qualified

seniors and to graduates under special requirements. Juniors may register only with permission of the Collegiate Board.

Three hours, through the year.

PROFESSOR BARNES

216. THE SOCIAL HISTORY OF THE MODERN WORLD. This course continues History 215. It traces the development of European society since 1500. The discussion centers about: The expansion of Europe through the Crusades, geographical discoveries, and colonization; the commercial revolution, the development of capital, and the rise of the middle class; the resulting industrial, commercial, social, and political changes; the industrial revolution viewed as the rise of applied science and machine technology, the growth of the factory system, and the transformation of modern society; and the various programs of social reform proposed to solve the problems of modern industrial society. Text-books, readings, and lectures. Open to qualified seniors and to graduates under special requirements. Juniors may register only with permission of the Collegiate Board.

Three hours, through the year.

PROFESSOR BARNES

Omitted in 1921-22.

217. THE HISTORY OF THE INTELLECTUAL CLASS IN EUROPE. This course traces the changes in interests, opinions, and attitudes of mind on the part of the intellectual classes from Oriental antiquity to the present day. The following are the more important topics analyzed: The antecedents of intellectual history; primitive reasoning; the general range of Greek speculation, its transmission to Western Europe by the Romans, and its assimilation with Christian doctrine, resulting in the Christian conception of man and the world as set forth in Augustine's *City of God*; early medieval culture; the origin of the medieval universities, the revival of Aristotle and the range of university teaching in the thirteenth century; the slow decline of Scholasticism during the fourteenth, fifteenth, and sixteenth centuries; the intellectual aspects of Humanism and the Protestant Revolt; the birth of the modern scientific spirit with Francis Bacon, Descartes, and the scientists of the sixteenth and seventeenth centuries; the Deists, Philosophes, and the attack on the Christian Epic; the development of the spirit of reform and of a theory of progress; the philosophical and theological reaction; the scientific, industrial, social, and political revolutions of the nineteenth century and the

resulting novel elements in contemporaneous intellectual life. Designed as a general cultural course and as the proper background for the technical and specialized courses dealing with the history of science, philosophy, and education. Lectures, based on Robinson's *Outline of the History of the Western European Mind*, and assigned readings. Open to graduate students and to specially qualified seniors. Juniors may register only with permission of the Collegiate Board.

Three hours, through the year.

PROFESSOR BARNES

218. THE HISTORY OF CLASSICAL SCHOLARSHIP. This course deals with the nature, development, and historical influence of Hellenic scholarship. The following are the more important topics treated: The more significant phases of Hellenic scholarship in the fields of literature, philosophy, historiography, and science; the transmission of Hellenism to Rome; the attempts of Boethius and others to adapt Hellenic learning to assimilation by medieval civilization; the vicissitudes of Hellenic thought in the early Middle Ages; the reintroduction and scientific editing of the works of Aristotle as the textual basis for Scholasticism and instruction in medieval universities; Humanism and the revival of interest in classical culture; the recovery, editing, and appropriation of classical works by the Humanists; and the influence of the classical revival upon European culture and education. The course will aim primarily to emphasize the contributions which the Greeks have made to the history of thought and culture, and to indicate the channels through which the Hellenic influences have been transmitted to the modern world. Lectures, assigned readings and papers.

Three hours, through the year.

PROFESSOR BRACKETT

Omitted in 1921-22.

3. PRIMARILY FOR GRADUATE STUDENTS

37. HISTORIOGRAPHY. A study of the methodology and literature of history as an introduction to historical research and as a preparation for the teaching of history. After a few introductory lectures on the scope, aims, methods, and interpretations of history the course attempts to arrive at a critical knowledge of the status of contemporary historiography by studying the stages and processes through which it has been attained. Lectures, and readings in Bernheim, Langlois and Seignobos, Wolf, Shotwell,

Bury, Peter, Gairdner, Balzani, Masson, Wegele, Feuter, Gooch, Jameson, Bassett, and in the chief works of some of the leading historians from Herodotus to the present. Lectures, readings and reports.

Two hours, through the year.

PROFESSOR BARNES

38. THE HISTORY OF THE SOCIAL SCIENCES. This course surveys the evolution of the sciences of politics, economics, and sociology in relation to the social and intellectual environment in which they have developed. Particular attention will be given to the development of methodology, to the process of differentiation from the parent body of social and ethical philosophy, and to the special influences affecting the progress of the social sciences as distinguished from natural science. Lectures and readings.

Two hours, through the year.

PROFESSOR BARNES

Omitted in 1921-22.

39. THE DEVELOPMENT OF THE DOCTRINE OF THE RELATION OF GEOGRAPHY TO HISTORY. The course traces the succession of theories regarding the effect of geographical environment upon social processes and the historical development of nations. It incidentally deals with the intellectual and scientific progress which is reflected in the assumptions and the data which have formed the foundation of such doctrines. The origin of this type of thought with such classical writers as Hippocrates, Aristotle, and Strabo is first surveyed. Next the doctrines of the philosophy of history from Ibn Khaldun and Bodin to Montesquieu, Herder and Buckle are considered. Then systematic anthropogeography, as represented by Ritter, Ratzel, Reclus, Brunhes, and Semple, is analyzed. Finally, the course closes with a presentation of special interpretations of geographical influences by writers such as Metchnikoff, Demolins, Le Play, Mackinder, Dexter, and Huntington; a consideration of the various types of criticism of geographical determinism; and an estimate of the importance of anthropogeographic theory for history and the social sciences. Lectures and assigned readings.

One hour per week, through the year.

PROFESSOR BARNES

Omitted in 1921-22.

311. RESEARCH COURSE IN INTELLECTUAL HISTORY. An advanced research course open to students who have successfully completed course 217. Special phases of intellectual development

are studied from year to year. For 1922-23 the subject is: Paganism, Christianity, and the decline of ancient science. The method of procedure is by reports and discussions.

Two hours, through the year.

PROFESSOR BARNES

New course. To be offered in 1922-23.

312. THE HISTORICAL AND CULTURAL ASPECTS OF MODERN NATIONALISM. This course aims to study the modern nationalistic and patriotic complex as a problem in the history of thought and culture. The historical, biological, sociological, economic, political, and cultural aspects of nationalism are critically examined. Lectures, readings, and reports.

One hour, through the year.

PROFESSOR BARNES

New course. Not offered in 1922-23.

313. RECENT TENDENCIES IN THE TEACHING AND INTERPRETATION OF HISTORY. This course traces the rise of the newer conceptions of the nature and purpose of history, and indicates the relation of these developments to the study and teaching of the subject. Intended primarily for teachers of history.

One hour, through the year.

PROFESSOR BARNES

New course. To be offered in 1922-23.

RELATED COURSES IN OTHER DEPARTMENTS

The attention of students is called to the following related courses offered in other departments:

THE HISTORY OF CHEMISTRY [Chemistry 212b]. Professor Merigold.

THE HISTORY OF BIOLOGY [Biology 314]. Professor Rice.

GENETIC PSYCHOLOGY [Psychology 27]. Professor Sanford.

COMPARATIVE PSYCHOLOGY AND MENTAL EVOLUTION [Psychology 315]. Professor Sanford.

BEHAVIORISM, PSYCHOBIOLOGY, AND FREUDIANISM [Psychology 317]. Professor Sanford.

THE HISTORY OF SCIENCE AND HIGHER EDUCATION [Education 25]. Professor Sanford.

THE HISTORY OF THE TEACHING PROFESSION [Education 38]. Professor Burnham.

THE HISTORY OF SOCIAL THEORIES [Social Science 218]. Professor Hankins.

SOCIAL ECONOMICS AND THEORIES OF SOCIAL REFORM [Social Science 217]. Professor Hankins.

STUDIES IN SOCIAL EVOLUTION [Social Science 223]. Professor Hankins.

HISTORY OF AMERICAN POLITICAL THEORY [Social Science 214].

DEPARTMENT OF MATHEMATICS*

PROFESSOR WILLIAMS; ASSOCIATE PROFESSOR MELVILLE†

UNDERGRADUATE WORK

The undergraduate courses are designed to furnish a practical knowledge of fundamental methods of Mathematics that will be useful in the affairs of life, in business, and in the pursuit of the sciences—as well as to prepare students for more advanced work in Mathematics.

A *major* in Mathematics consists of twenty-four semester hours, including courses 12 and 13; a *minor* consists of eighteen semester hours, including course 11 or 18 and such other courses as may be approved by the department in which the student has elected his *major*.

MATERIAL FACILITIES

The Library is provided with the more important text-books, treatises, and memoirs on the various branches of Mathematics, as well as the principal journals and transactions of learned societies that are devoted to any considerable extent to Mathematics.

The Department possesses a good collection of models, a Thomas arithmometer, an Amsler planimeter with revolving table, an engineers' transit, a Y-level, small plane table, hand level, rods and tapes, a four-inch astronomical telescope equatorially mounted on a tripod, an eighteen-inch celestial globe, and a "*Kullmer* Star Finder."

COURSES IN MATHEMATICS

I. PRIMARILY FOR UNDERGRADUATES

II. INTRODUCTORY COURSE: For students with *major* or *minor* in Mathematics or Physics. Elements of plane Analytic Geometry, including the straight line; plane Trigonometry; elementary theory of equations including Horner's method and

*Graduate courses in Mathematics, leading to the Master of Arts degree, have been given in 1921-22 by Professor Webster.

†Professor, 1922-.

De Moivre's Theorem for complex numbers; elements of determinants; and elements of differential and integral calculus. "Unified" course.

Three hours, through the year.

PROFESSOR WILLIAMS

12. CALCULUS AND ANALYTIC GEOMETRY. Differential and integral calculus and Analytic Geometry in two and three dimensions; areas of plane and curved surfaces; quadric surfaces; lengths of curves and curvature; and volumes of solids.

Three hours, through the year.

PROFESSOR WILLIAMS

13. CALCULUS AND ELEMENTARY THEORY OF DIFFERENTIAL EQUATIONS. Continuation of course 12 with applications to solutions of problems involving ordinary and partial differential equations.

Six hours, through the year.

Omitted in 1921-22.

To be offered in 1922-23 as two separate three hour courses.

Given in 1st Sem. to two or three men - lectures by Prof. Updegraff & drill work by Prof. Melville (3 hrs.)

14.* THEORY OF STATISTICS. Theory of errors, least squares, measures of correlation, and graphical representation.

Three hours, through the year, or either semester as elected.

Omitted in 1921-22.

15b.* DESCRIPTIVE GEOMETRY. Including theory of projections as applied to map making.

Three hours, second semester.

Omitted in 1921-22.

17. SPECIAL ELEMENTARY COURSE: For students deficient in preparatory Mathematics.

Three hours, through the year.

To be omitted in 1922-23.

PROFESSOR WILLIAMS

18. ELEMENTARY MATHEMATICS. A course offered primarily for students who do not intend to *major* in Mathematics but who still desire some mathematical training. The principal topics studied are Algebra, with emphasis on the solution of equations, plane Trigonometry, and coördinate Geometry. The course is designed to meet the needs of students in Physics and Chemistry who do not take Mathematics 11, and of students in other subjects who are interested in graphical methods or statistics.

Three hours, through the year.

ASSOCIATE PROFESSOR MELVILLE

*Open to all properly prepared students, graduate or undergraduate.

III

19a. ASTRONOMY. Chiefly descriptive, the object being to make the students acquainted with the main features of the heavens, celestial phenomena and laws governing them, and the most important theories that have been devised to explain them, with such mathematical deductions as will meet the needs of the class. Telescopic observations under the direction of the instructor.

Three hours, first semester.

PROFESSOR WILLIAMS

Alternates with course 110. Given in 1921-22.

110a. ELEMENTARY SURVEYING. Fundamental principles; field work with transit, level, sextant, compass, and chain; map making and map reading.

Three hours, first semester.

Alternates with course 19. Omitted in 1921-22.

III. INTRODUCTORY MECHANICS. A course offered primarily for first year students who expect to take Physics 11 in their second year, and intended to supplement Mathematics 11 or 18. The fundamental laws of statics and dynamics are studied. Much attention is given to the solving of problems.

Students with a liking for Mathematics who cannot take a *major* or a *minor* in that subject will find in this course a suitable elective. Open to those who have completed or are taking either course 11 or course 18.

Three hours, through the year.

ASSOCIATE PROFESSOR MELVILLE

To be offered in 1922-23 as Physics III.

112b. APPLIED MATHEMATICS. A course treating different topics from year to year, and intended to meet in part the needs of groups of students interested in various applications of Mathematics. According to the demand, work will be offered in elementary or advanced theory of statistics, including theory of errors, least squares, measures of correlation, graphical representation, etc.; or in the mathematical theory of investment and insurance; or in Descriptive Geometry and the elementary theory of projections as applied to map making. Open to all properly prepared students.

Three hours, second semester.

ASSOCIATE PROFESSOR MELVILLE

A new course, to be offered in 1922-23.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS*

28. DIFFERENTIAL AND INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS. A course given for graduate students in other departments who need additional knowledge of the methods of calculus.

Two hours, through the year.

ASSOCIATE PROFESSOR MELVILLE, first semester

PROFESSOR WILLIAMS, second semester

Not to be offered in 1922-23.

DEPARTMENT OF PHYSICS

PROFESSOR WEBSTER, PROFESSOR GODDARD, MR. ROOPE

The aim of the undergraduate work of this Department is to give to a student who has had a good high school course the opportunity to obtain such knowledge of the methods and results of modern Physics without which no one may hope to be considered liberally educated, as well as to fit him in the minimum of time with professional preparation for Chemistry, Geology, Meteorology, Geography, Medicine, the teaching of Science, Engineering, or graduate work in Physics. All engineering is applied Physics and Chemistry, and especially that fundamental part of Physics known as Mechanics. At the present stage of the development of culture no man can expect to be a successful engineer who is not familiar with the leading methods of Physics, who is not well grounded in Mathematics, and who has not had some practical experience in the methods of research.

To the inculcation of the methods of research and the highest ideals in science the graduate work of the department is exclusively directed. The experiences of the war have shown that in almost every department of activity the careful and exact methods of the physicist have been of the greatest utility. Whether on the earth, in the air above the earth, or the waters under the earth, the labors of the physicist have been productive of the most wonderful results. Many engineering questions have been treated in this department, and many graduates of engineering schools have resorted hither for further training, often to become professors of Physics or Engineering or highly paid experts in engineering firms. In order to set forth to intending graduate students the facilities

*See also courses 14 and 15.

of this department, stress may be laid on a number of points in which it is believed that conditions here are exceptional.

First, the fact that the attention of the professor is not distracted from the needs of the student by other duties, which, combined with the small number of students in the department, enables an amount of personal attention to be given to each one which is perhaps unique in this country. The head of the department is able to see each student and to give him personal advice in the conduct of his researches or his studies every day if necessary. The facilities without which no graduate department of research in Physics can be complete are comprised under three heads: First, a systematic course of lectures in Theoretical or Mathematical Physics; second, a laboratory with a sufficient number of rooms for individual work and with a sufficient equipment of apparatus and an instrument shop for the speedy production of whatever may be necessary for the research in hand; third, a library containing the classic works on Physics, with full sets of journals and proceedings of learned societies by which the history of progress, past and present, may be studied, and kept up-to-date by the continual purchase of the latest works. In all these directions the facilities offered by this Department invite attention. Attention is called to the fact that *no branch of Physics is left unprovided for in the courses of lectures.*

It should be urged upon intending graduate students to prepare themselves, not only in ordinary laboratory measurements, but also in Mathematics, the lack of proper mathematical preparation being a serious drawback to the appreciation of the lectures. In particular may be recommended for study not merely those portions of the calculus which deal with the working out of many indefinite integrals, etc., but the theoretical portions which deal with the ideas of partial derivatives, definite integrals, and their practical manipulation, together with enough analytic geometry to involve the properties of lines and *surfaces* of the second order, and a fair amount of the elements of determinants. As suitable text-books for preparation may be recommended to the student Lamb's, Osgood's, or Gibson's *Calculus*, C. Smith's *Analytical Geometries*, and Muir's or Hanus's *Determinants*. Appell, *Éléments de l'analyse mathématique*, or Zoretti, *Leçons de mathématiques générales*, may be very strongly recommended to the intending student for study before and during his course at the University.

It cannot be too strongly urged that the student should, from the beginning, be able to read French and German with ease.

REQUIREMENTS FOR THE DOCTOR'S DEGREE

1. The ability to read at sight specimens of scientific French and German, tested before the first of November preceding the Doctor's examination by a committee of two members of the faculty.

2. The successful passing of an examination upon the general subject of Experimental Physics* and upon the subjects named above in the regular course in Theoretical Physics, as a *major* requirement, together with an examination in one *minor* subject, *to be determined in each particular case by the head of the Department of Physics*. This subject will be Mathematics or Chemistry.

3. The presentation of a satisfactory dissertation, involving a substantial amount of original work, and forming a contribution of value to pure science. The presentation of the dissertation is a prerequisite to examination. The time of residence necessary for the proper fulfillment of the above requirements will generally be at least three years, of which at least one will be very largely devoted to work on the dissertation. Students will not be encouraged to enter upon the work of a dissertation until they have acquired sufficient experience to enable them to specialize with advantage.

THE LABORATORY

The Laboratory occupies three floors of one wing of a large, well-lighted building free from disturbances, and admirably adapted to the purposes of a physical laboratory. On the ground floor is a room extending across the end of the building forty-five feet long by twenty-two feet wide, with windows on three sides, above which are three similar rooms. A lift running from the bottom to the top floor affords means of transporting apparatus, while its shaft furnishes space for manometer or barometer tubes. In the lower room are four piers with heavy stone tops, and two others below the floor on which can be placed heavy tables.

The storage-battery room contains sixty storage cells of ten amperes capacity, constituting the power-supply. The storage

*Every student is recommended to provide himself with Winkelmann's *Handbuch der Physik* or Chvolson, *Traité de Physique*.

cells are conveniently arranged so that each one is accessible from each side, from above and below, and the ventilation is excellent, while the room is as light and clean as the work-rooms. Distributing switchboards allow the current from the dynamo or any section of the battery to be supplied to any of the rooms. On the same floor are three rooms constituting the workshop, one of the most important parts of a research department of Physics. The first room is devoted to wood-working and pattern-making and accommodates also a bench for soldering. The next room contains the machinist's bench, an engine-lathe and drill-press, and the third room a Rivett precision bench-lathe, jeweler's lathe and Brown & Sharpe universal milling-machine. There is no countershafting in the building, each tool being driven by a separate electric motor, so that perfect quiet and steadiness are insured. In the shop are executed all repairs and alterations of apparatus, and the new apparatus requiring continual experiment is constructed. Most of the principal pieces of apparatus belonging to this department have been thus constructed.

On the main floor are the lecture room, the director's office, the large room used as the director's private laboratory and apparatus room, and three other convenient rooms for research. Two of these are arranged so that they may be darkened for photography, and one is heavily padded with felt for acoustical researches. The large room on the top floor is, for the coming year, lent to the Department of Chemistry. Close by is a high potential battery of two thousand small storage cells. Every room in the high potential laboratory contains sinks, gas and electric light connections, and several circuits connecting with the switchboard in the battery-room.

The collegiate laboratory consists of six large, well-equipped rooms on the second floor of the Laboratory Building. The general laboratory is a room twenty-two by forty-five feet and has windows on three sides, there being space and apparatus sufficient to accommodate about twenty students in a division.

The lecture room has seats for fifty students, and the lecture table is equipped with direct and alternating current, gas, water, and complete projection apparatus. A special effort has been made to avoid the more elaborate "show pieces" of demonstration apparatus, and to employ chiefly such apparatus as most directly and simply illustrate phenomena.

The other rooms are a preparation room and office, a large shop and stock room, equipped for glass-blowing, besides two smaller rooms for advanced work in light and electricity.

Among the pieces of apparatus may be mentioned four Staudinger balances, a Zeiss comparator, Fuess cathetometer, Schmidt and Haensch triple field polarimeter, a large Hilger quartz spectrograph, Zeiss Pulfrich refractometer, Fuess spectrometer, Mercedes electrostatic machine, Wolff potentiometer, together with a good collection of electrical measuring instruments.

A radio station for experimental work has been installed, having two kilowatts capacity and a sending radius of a thousand miles by radiophone. The Clark Radio Club has been organized, the intention being to act in close coöperation by radiophone with a similar radio club at Kalamazoo College, Michigan, which institution is installing a similar outfit.

The graduate laboratory is well equipped with apparatus for research besides having the facilities above described for the construction of instruments of any sort needed for that purpose. In addition may be mentioned a large collection of diagrams illustrative of mathematical physics, many of them being originals of the figures in Professor Webster's *Electricity and Magnetism and Dynamics*, and a number of interesting models used in teaching dynamics, thermodynamics, and electricity. Among them are Maxwell's Dynamical Top and a number of other interesting tops, Maxwell's and Rayleigh's induction models, Gibbs's, Van der Waals's, and other thermodynamical surfaces. This collection of drawings and models can probably not be matched in this country, and is continually being increased.

THE BALLISTIC INSTITUTE

During the year 1918, and in the desire to contribute to the work of the war, a new department of research was opened, which is a very natural application of the methods above described, and for which the facilities already existed in high degree. This was an institute of ballistic research, in which investigations of all sorts on the properties of guns and projectiles and the physical laws involved in their operation may be made. From the time that the long-range gun began to bombard Paris from a distance of seventy miles, the subject of Ballistics was taken up in the colloquium and in lectures, and the services of every member of the

department were enlisted in contributing to the subject. A paper on the *Exterior Ballistics of Long-Range Guns* was presented at the meeting of the American Philosophical Society at Philadelphia in April, and at the National Academy of Sciences in the same month, and several experimental papers have been read at the meetings of the latter and of the American Physical Society. Ten papers have appeared, and others are nearly ready.

UNDERGRADUATE WORK

Undergraduate students whose *majors* or *minors* are in Physics are required to take, during the freshman year, either Mathematics 11 or 18, and Physics 111 (known as Mathematics 111 in 1921-22). Physics 111, which deals largely with the solution of practical problems in Mechanics, affords an excellent foundation for the beginning course, Physics 11. The department offers a three hour course, Physics 112, which includes laboratory work, for premedical students or others desiring a course of this nature, the prerequisite being Mathematics 11 or 18.

A *major* in Physics for undergraduates requires twenty-four semester hours. Students *majoring* in Physics should take Physics 11 the second year, Physics 14 the second semester of the second year and the first semester of the third year, Physics 16 the second semester of the third year, and one or more of the courses 12, 13, 15, and 17. Students *minoring* in Physics should take Physics 11, and 12, 13, 14, 15, 16, or 17. Students *majoring* in Chemistry should take Physics 11, 14, and 16 for their *minor*. Courses 14, 15, and 16 may be pursued for either the first or second semester alone with one half the full credit for the entire course in each case. Course 11 may be taken for the first semester alone, but the work of the second semester presupposes that of the first. All courses other than 11, 111, and 112 presuppose course 11.

As a result of the war all courses have been modified with the view of increasing their efficiency. In the undergraduate courses this has resulted chiefly in advancing some of the work to the second and third years, in order that the necessary mathematical work shall have been completed before work in Physics is undertaken.

The courses of a strictly undergraduate nature are Physics 11, 14, 16, 17, 111, and 112. Courses 12 and 13, although of undergraduate grade, have been open to graduate students who were *majoring* in subjects other than Physics.

GRADUATE WORK

In the graduate work the courses are so arranged that a student who has had a good college course may begin in any year, and at the end of three years will have neglected no important subject.

The courses for graduate students in 1922-23 will be 25, 26, 32, 34, 35, 37a.

In addition to these formal courses there is held a weekly colloquium, or meeting for the informal discussion of subjects not treated in the lectures, and for the presentation by the students of reports on important articles appearing in the journals. A part of the work of the colloquium consists in the systematic presentation of certain classical researches, more or less connected with the lectures, in preparing which the students make use of the original sources of information, thus gaining much acquaintance with the methods of the masters in research. The work of the colloquium has an excellent effect in training students to present their ideas in a systematic manner before an auditory.

COURSES IN PHYSICS

I. PRIMARILY FOR UNDERGRADUATES

II. GENERAL PHYSICS. This course is intended for students who wish to make a somewhat detailed elementary study of the various parts of Physics. The course lays the groundwork for those who desire to take up Engineering, Chemistry, Medicine, or the teaching of science as a profession, and is the natural starting point for those wishing to do further work in Physics. During the first semester the work covers mechanics and heat; and during the second semester, electricity and magnetism, wave motion, sound, and light. The text-book for the current year is Kimball's *College Physics*.

Open to those who have had Mathematics II or I8 and Physics III (Mathematics III after 1920-21). Five lectures and one laboratory period per week in the first semester, three lectures or recitations per week in the second semester.

Six hours, first semester; *three hours*, second semester.

PROFESSOR GODDARD AND ASSISTANTS

12. ELEMENTARY THEORETICAL MECHANICS. Systematic presentation of theory by lectures and recitations together with the solution of problems. Mathematics 12 must be taken before

or with this course. The text-books are Horace Lamb's *Statics* and *Dynamics* and Slocomb's *Theory and Practice of Mechanics*. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

13. ELEMENTARY THEORY OF ELECTRICITY AND MAGNETISM.

Systematic presentation of elementary theory by lectures and recitations, together with the solution of problems, including the general principles of dynamo and motor design, and the solution of branch alternating current circuits. This course is of special importance to those intending to specialize in Physics, Mathematics, or Engineering. Mathematics 13 must be taken before or with this course. A knowledge of the more important differential equations is advised. Starling, *Electricity and Magnetism*. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

Omitted in 1921-22.

14. MECHANICAL AND ELECTRICAL MEASUREMENTS. The first half of the course consists of a series of exercises in dynamics, including kinetics of translation and rotation, elastic properties of materials, and advanced problems in heat. The second half is a systematic course in electrical measurements, with a few advanced problems in light, and constitutes the laboratory portion of the work in Physics 11. One lecture and two laboratory periods per week.

Three hours, for two semesters, beginning with the second semester of the college year.

MR. ROOPE AND ASSISTANTS

15. THERMODYNAMICS AND OPTICS. Elementary theory of thermodynamics and optics, chiefly optics, presented by lectures and recitations, including work in practical photography. Mathematics 12 must be taken before or with this course. The respective text-books are *Treatise on Heat*, Edser or Perkins, and a *Treatise on Light*, Houstoun. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

Omitted in 1921-22.

16b. ADVANCED PHYSICAL MEASUREMENTS. This course deals with advanced problems in physical measurements, chiefly in optics and electricity. Physics 14 is prerequisite. One lecture and two laboratory periods per week.

Three hours, second semester. MR. ROOPE AND ASSISTANTS

17. **ADVANCED GENERAL PHYSICS.** Lectures and recitations. This course is intended for those desiring a more advanced presentation of mechanics, electricity, heat, and light than is afforded by Physics 11, yet who do not desire year courses in these special subjects. Although the treatments are less complete than in courses 12, 13, and 15, a good perspective of the subject of Physics may nevertheless be gained. Mathematics 13 must be taken before or with this course. Divisible course.

Three hours, through the year.

Omitted in 1921-22.

In charge of PROFESSOR GODDARD

*III. **INTRODUCTORY MECHANICS.** A course offered primarily for first year students who expect to take Physics 11 in their second year, and intended to supplement Mathematics 11 or 18. The fundamental laws of statics and dynamics are studied. Much attention is given to the solving of problems.

Students with a liking for Mathematics who cannot take a *major* or a *minor* in that subject will find in this course a suitable elective. Open to those who have completed or are taking Mathematics 11 or 18.

Three hours, through the year.

112. **GENERAL PHYSICS.** This course is intended for pre-medical students and for others who desire a three hour course in general Physics, covering much the same ground as Physics 11, and including laboratory work. Mathematics 11 or 18 prerequisite. The text-books are Millikan's *Mechanics, Molecular Physics and Heat*, and Millikan and Mills's *Electricity, Sound and Light*. Two lectures or recitations and one laboratory period per week, together with one optional, unprepared hour of problems and discussion. Divisible course.

Three hours, through the year.

PROFESSOR GODDARD

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

21. **DYNAMICS. THE FUNDAMENTAL PRINCIPLES OF DYNAMICS, INCLUDING THE USE OF THE PRINCIPLE OF HAMILTON AND THE EQUATIONS OF LAGRANGE.** This course will be repeated yearly.

PROFESSOR WEBSTER

22. (24, in 1921 Catalogue.) **NEWTONIAN AND LOGARITHMIC POTENTIAL FUNCTIONS, ATTRACTION OF ELLIPSOIDS.** This course

*Given in 1921-22 as Mathematics 111.

is a necessary preliminary to the study of electricity and magnetism, of hydrodynamics, and of the figure of the earth.

PROFESSOR WEBSTER

23. (25, in 1921 Catalogue.) THEORY OF STRESS AND STRAIN, OF LINEAR VECTOR FUNCTIONS, AND ELASTICITY.

PROFESSOR WEBSTER

24. (224, in 1921 Catalogue.) INTRODUCTION TO THEORETICAL PHYSICS. This course is intended for students in Chemistry, Psychology, Economics, etc., whose mathematical training in college leaves something to be desired, and who nevertheless need to have some knowledge of the Calculus and of Mathematical Physics. The mathematical methods needed will be carefully explained in an elementary manner.

PROFESSOR WEBSTER

3. PRIMARILY FOR GRADUATE STUDENTS

25. (32, in 1921 Catalogue.) DYNAMICS. GENERAL PRINCIPLES, EQUATIONS OF LAGRANGE AND HAMILTON, METHODS OF HAMILTON AND JACOBI, SYSTEMS OF PARTICLES. This course is fundamental for the pursuit of all the others, and includes a detailed account of the principle of Least Action and the differential equations of Lagrange, preparatory to their application to other parts of Mathematical Physics such as optics and electricity.

PROFESSOR WEBSTER

26. (33, in 1921 Catalogue.) MOTION OF RIGID BODIES, AND THE THEORY OF MOVING AXES. This course takes up the theory of tops and rotating bodies, including the multifarious applications of the gyroscope in engineering and war.

PROFESSOR WEBSTER

27. (36, in 1921 Catalogue.) HYDRODYNAMICS, WAVE AND VORTEX MOTION, DYNAMICAL BASIS OF SOUND AND LIGHT. These courses are the basis of applications of the theory of wave motion to sound, light, electromagnetism, and earthquake waves, and to the study of meteorology.

PROFESSOR WEBSTER

The substance of the preceding courses is contained in Professor Webster's *Treatise on Dynamics*, B. G. Teubner, Leipzig.

For the theory of vibrations of all kinds, see course 37c.

28. (38, in 1921 Catalogue.) THE THEORY OF RESONANCE AND OF GENERALIZED IMPEDANCE WITH APPLICATIONS TO THE MEASUREMENT OF SOUND AND TO WIRELESS TELEGRAPHY AND TELEPHONY. The general theory of musical instruments and of

acoustical engineering. This course takes up Professor Webster's original researches in acoustics, and also shows how the methods there employed bear on the fundamental electrical phenomena involved in wireless telegraphy. It also takes up the practical questions involved in the design of auditoriums and questions of vibrations.

PROFESSOR WEBSTER

29. (39, in 1921 Catalogue.) THE THEORY OF ELECTROSTATICS AND MAGNETOSTATICS, WITH THEIR RELATIONS TO ELASTICITY.

PROFESSOR WEBSTER

30. (310, in 1921 Catalogue.) ELECTROMAGNETISM, THE THEORY OF THE ELECTROMAGNETIC FIELD IN THE QUASI-STATIONARY STATE, ELECTRIC WAVES. The classical theories and the theory of Maxwell. The substance of these courses is found in Professor Webster's *Mathematical Treatise on the Theory of Electricity and Magnetism*, London, Macmillan & Co.

PROFESSOR WEBSTER

31. (311, in 1921 Catalogue.) RECENT DEVELOPMENTS IN ELECTRICAL THEORY, INCLUDING THE THEORY OF LORENTZ, THE PRINCIPLE OF RELATIVITY, AND THE EINSTEIN THEORY OF GRAVITATION. The application to the theory of electrons and to the optics of bodies in motion, with the study of differential quadratic forms.

PROFESSOR WEBSTER

32. (312, in 1921 Catalogue.) THE THEORY OF LIGHT. Propagation of light, diffraction, reflection and refraction, dispersion, double refraction, polarization, metallic reflection, magneto-optics, X-rays and crystals.

PROFESSOR WEBSTER

33. (314, in 1921 Catalogue.) GEOMETRICAL OPTICS. Properties of systems of rays, and their various aberrations. Hamilton's characteristic function or Eikonal. Applications to optical instruments.

PROFESSOR WEBSTER

34. (315, in 1921 Catalogue.) THERMODYNAMICS. THERMO-AND ELECTRO-CHEMISTRY. The establishment of the two laws of thermodynamics, and their application, by means of the methods of Gibbs and Helmholtz, to the examination of physical and chemical phenomena. Application to heat-engines, including steam, gas, and oil engines, the flow of gases and vapors, and the steam turbine. The conditions of chemical equilibrium, phenomena of electrolysis, osmotic pressure, and capillarity. Nernst's Theorem.

PROFESSOR WEBSTER

35. (316, in 1921 Catalogue.) THE KINETIC THEORY OF GASES. The Maxwell-Boltzmann Theorem and the elements of statistical mechanics.

36. (317, in 1921 Catalogue.) THE KINETIC THEORY OF BODIES. Radiation and the modern Theory of Quanta. The relations obtained from the laws of Kirchhoff, Stefan, Wien, and Planck, by the recent applications of thermodynamics, and the deviations from classical mechanics involved in theories of quanta.

PROFESSOR WEBSTER

37. (319, in 1921 Catalogue.) THE PARTIAL DIFFERENTIAL EQUATIONS OF MATHEMATICAL PHYSICS. Laplace's equation, equation of thermal and electrical conduction, equation of wave motion, Helmholtz's equation, Lorenz-Beltrami equation, telegrapher's equation, and their special cases, in one, two, or three dimensions. This course will be divided into three parts:

a. Deduction of the equations. Vector analysis. The older methods, including those of Cauchy and Fourier. Developments in series, trigonometric series, Legendre's, Laplace's, Bessel's, Lamé's functions.

b. Methods of Green and Riemann-Volterra, boundary problems and characteristics.

c. Theory of vibrations and normal functions, genesis of partial differential equations and integral equations.

This complete course is probably the most important of all for the theoretical physicist, and treats a great variety of subjects from the most varied fields, grouping them all into a connected system and embracing all the methods of theoretical Physics.

The above lectures are to be found in Professor Webster's *Treatise on the Partial Differential Equations of Mathematical Physics*, which, being in press with Teubner, has been held up for eight years, but which may be expected to appear soon.

PROFESSOR WEBSTER

38. (320, in 1921 Catalogue.) THE ELEMENTS OF INTEGRAL AND INTEGRO-DIFFERENTIAL EQUATIONS, AND THEIR APPLICATIONS TO MATHEMATICAL PHYSICS.

PROFESSOR WEBSTER

39. (321, in 1921 Catalogue.) SELECTED CHAPTERS IN THE APPLICATION OF THEORETICAL PHYSICS TO COSMICAL PHENOMENA,

INCLUDING PROBLEMS IN GEODESY, THE TIDES, METEOROLOGY, SEISMOLOGY, AND TERRESTRIAL MAGNETISM.

PROFESSOR WEBSTER

310. (322, in 1921 Catalogue.) LINEAR DIFFERENTIAL EQUATIONS. The applications of the theory of functions to the linear differential equations of the second order which arise in mathematical Physics. This course will be incorporated in the new book. (See course 37c.)

PROFESSOR WEBSTER

DEPARTMENT OF POLITICAL AND SOCIAL SCIENCE

PROFESSOR HANKINS, PROFESSOR BARNES, ASSISTANT PROFESSOR HILMER*

UNDERGRADUATE WORK

The undergraduate courses of this department furnish introductions to Political Science, Economics, Social Economics, and Sociology. Several of them are intended primarily for the general student seeking the knowledge and training necessary for intelligent citizenship. Others are more special in character and should be pursued by those looking forward to graduate study in Social Science or to such vocations as law, business, and public service.

Freshmen are admitted to courses 11, 12a, and 12b, and students making a *major* in the department are advised to take these in their first year. Freshmen are not eligible to 13 unless they have made some previous study of the subject. All other courses are open to all juniors and seniors who have had the necessary introductory work. Students with *majors* in other departments are advised, if freshmen, to select courses 11, 12a, or 12b, or, if seniors, courses 11, 12a, 12b, 13, 210, 213a, 214b, 215, 216, or 217.

An undergraduate *major* in this department consists of twenty-four semester hours, which, as a rule, will include courses 11, 12a, 12b, 13, 24, and 216.

A number of the courses of this department constitute desirable or necessary preparation for professional careers in law, business, foreign commerce, social work, or teaching the social sciences. Students planning to enter upon such professional activities should consult with their adviser or some instructor of the department as to the most profitable arrangement of their programs.

*Resigned June 1922.

GRADUATE WORK

The courses specified below as open to graduate students indicate the scope and nature of the work offered for advanced degrees. A *major* for the A.M. and Ph.D. degrees may be taken in this department, centering around the subject of Sociology; the required *minor* may be taken in Geography, History, Psychology, or Pedagogy according to the interests of the student.

The courses in Sociology are designed primarily for those who plan to engage in teaching the subject or in some phase of sociological research or practical social work. Besides a general historical survey of social theories and a critique of certain major principles of sociological interpretation, chief attention is given to an analytical study of fundamental problems and methods of approaching them. Especial attention is given to quantitative methods of study as supplying the best training for social investigation and the most effective means for displacing opinion with fact in controverted matters.

The courses in Economics are designed to provide an historical and descriptive analysis of economic institutions, and an introduction to the leading theoretical principles which may be derived from a study of the development and nature of contemporary economic institutions.

The courses in Government aim to acquaint the student with the general principles of political organization and activity, and with the nature of the governments of the leading modern states. Particular attention is given to the government of the United States. As far as possible, the courses are devoted to an analysis of the actual working of political institutions and the nature of political processes, rather than to a formal description of the external structure of governmental machinery.

The graduate work in Sociology is carried on in close relationship with the departments of Geography and History. Special attention is called to the courses in Anthropogeography and Economic Geography I as announced on pages 53-55; and to the courses in the History of Thought and Culture (pages 104-109). Courses 215, 216, 217 and 38 (pages 104-107) may be counted toward *major* requirements for a graduate degree in Sociology. Special attention is called also to the graduate history courses announced on pages 101-103. Students of Sociology will also wel-

come the opportunity to take courses in Education and School Hygiene (see pages 84-87), and Psychology (pages 132-137).

COURSES IN SOCIOLOGY

I. PRIMARILY FOR UNDERGRADUATES

11. INTRODUCTION TO THE SOCIAL SCIENCES. This is a general survey course designed primarily to give the student an informed basis and an intelligent attitude for further work in the Department. It comprises an introductory study of the main factors in the development of man, the beginnings and main stages in the evolution of social life, the family, industry, and the state. In the latter part of the course attention is given to certain major aspects of present-day industry, politics, and world organization.

Three hours, through the year.

PROFESSOR HANKINS

Not to be given in 1922-23.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

216. SOCIOLOGY. This course aims to develop a scientific as opposed to a dogmatic attitude toward social questions, to present an outline of social organization and institutions as related to social evolution, and to analyze certain leading principles of sociological interpretation. During the first semester the evolution of society and of the principal social institutions is studied. This is followed in the second semester by an analysis of the factors of social life and of the principles of sociological theory. Special papers on selected topics may be required. Indivisible course.

Three hours, through the year.

PROFESSOR HANKINS

218. HISTORY OF SOCIAL THEORIES. A survey of the main contributions to sociological literature beginning with Auguste Comte. A partial list of the writers who are covered is: Comte, Quetelet, Buckle, Bagehot, Spencer, Novicow, Worms, Kidd, De Greef, Gumpłowicz, Kropotkin, Oppenheimer, Small, Ratzenhofer, Ward, Giddings, Durkheim, Sumner, Boas, Ross, Cooley, and McDougall. Attention is given to the contributions of modern biology, of anthropogeography, and of the economic determinists. Each author is taken up in turn and his viewpoints and principles analyzed and discussed.

Two hours, through the year.

Not to be given in 1922-23; see course 38, page 107.

220. **PROBLEMS OF POPULATION.** Considers various laws of population as developed by Malthus, Spencer, Nitti and others; vital statistics, birth and death rates, heredity and selection with some attention to statistical methods; theories of racial decay; eugenics and race-regeneration; and biological and sociological conditions affecting the supply of genius. Lectures, reports, discussions.

Two hours, through the year.

Omitted in 1921-22.

221. **NATURE VERSUS NURTURE.** Questions of social policy frequently resolve themselves into opinions as to the relative importance of biological and environmental factors in the life of individual or group. This course begins with an analysis of the matter and methods of the works of Galton and Pearson and the contrasted works of Ward and others. There follows a survey of investigations in the mental measurements of groups and races, and such studies of social life—child mortality, poor relief, crime and delinquency, alcoholism, etc.—as may throw some light on the respective parts played by inheritance on the one hand and social custom and training on the other.

One hour, through the year.

PROFESSOR HANKINS

222. **ELEMENTS OF STATISTICAL METHOD.** A course designed to familiarize the student with present methods of handling quantitative data in social science with special reference to various kinds of averages, and measures of dispersion and of correlation.

Two hours, through the year.

To be given in 1922-23.

223. **STUDIES IN SOCIAL EVOLUTION.** A critical examination of the historic doctrines of social evolution. Attention is given to the chief theoretical positions of the classical evolutionary school, as represented by Tylor, Morgan and Fraser, which are contrasted with the critical doctrines of Boas and his disciples. The theories of unilateral evolution, cultural convergence, and diffusion are considered.

One hour, through the year.

Omitted in 1921-22.

224. **CRIMINOLOGY AND PENOLOGY.** This course describes the progress in the method of dealing with anti-social behavior.

The growth of a scientific attitude towards the nature of the criminal and the function of incarceration is discussed. Then the progress of criminal jurisprudence is analyzed and the current agitation for sociological jurisprudence is studied. The course closes with a survey of the history of penal institutions and administration, including the more advanced programs of penal reform. The course is designed for students of social economy and those intending to enter the practice of law.

One hour per week through the year. PROFESSOR BARNES

3. PRIMARILY FOR GRADUATE STUDENTS

319. GENERAL SOCIOLOGY. A series of lectures dealing with social origins and evolution and sociological analysis. Topics treated include the origin of man, of races, and of society; primitive ideas; religion, its origin, evolution, and function; the family; tribal society; the state; philosophies of history. The analysis of social factors treats the physiographic, biological, economic, and psychological bases of society and such special processes as natural and artificial selection; communication; coöperation; competition; differentiation; socialization.

One hour, through the year.

Omitted in 1921-22.

325. SEMINAR. Given to reports on theses and selected portions of the current literature. Special attention is given to the periodical literature dealing with population questions or with some phase of sociological inquiry. During 1921-22 the seminar is devoted to a study of patriotism and related manifestations of the gregarious instinct and its associated emotions.

One hour, through the year. PROFESSOR HANKINS

324. BIOLOGICAL FACTORS IN SOCIAL CAUSATION. This course is both historical and analytical. There is a survey of the utilization of biological concepts in social theory, including the organismic concept, natural and social selection, race conflict, anthropo-sociological doctrines and eugenics. There follows a study of the rôle of heredity, variation, selection, mutation, individual and sex differences in modern society.

Two hours, through the year. PROFESSOR HANKINS

New course. To be offered in 1922-23.

COURSES IN ECONOMICS

I. PRIMARILY FOR UNDERGRADUATES

13. INTRODUCTION TO ECONOMICS. A general introduction to economics, including a study of the principles of value and price, money and banking, international trade, wages and labor problems, combinations and trusts, socialism, public finance and taxation. Emphasis is placed upon a critical analysis of principles.

Three hours, through the year. ASSISTANT PROFESSOR HILMER

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

24. PRINCIPLES OF ECONOMICS. A more intensive study than can be attempted in an introductory course; together with the analysis and criticism of some current theories and dogmas.

One or more hours, through the year.

ASSISTANT PROFESSOR HILMER

25a. CORPORATION FINANCE. A study of the business corporation, with a special reference to its economic significance; the different classes of securities; promotion; underwriting; bankruptcy and reorganization; financial abuses and involvements.

Three hours, first semester. ASSISTANT PROFESSOR HILMER

26b. MONOPOLY AND COMPETITION. The regulation of competition, problems of industrial combination and monopoly, public regulation and control of rates of railroads and of other public utility corporations.

Three hours, second semester.

ASSISTANT PROFESSOR HILMER

27a. MONEY AND BANKING. A discussion of the more important aspects of money and credit is followed by a study of commercial banks in the United States, Canada, and European countries. Some attention is given to financial institutions other than commercial banks.

Three hours, first semester. ASSISTANT PROFESSOR HILMER

28b. TAXATION AND PUBLIC FINANCE. Public expenditures; budgets and budgetary legislation; public revenue, including taxes, fees, special assessments; the shifting and incidence of taxation; public debts and war finance.

Three hours, second semester.

Omitted in 1921-22.

210b. **LABOR PROBLEMS.** A systematic study of the history and progress of organized labor in the United States; the aims and methods of the wage earning class; trade unionism; methods of remuneration; the settlement of industrial disputes; labor legislation.

Three hours, second semester.

Omitted in 1921-22.

217. **SOCIAL ECONOMICS AND THEORIES OF SOCIAL REFORM.** This course gives a survey of a number of the current movements for social and industrial betterment, includes a critical examination of schemes for social reconstruction, and considers the relation of social reform to social evolution. Such subjects as the following are studied: Poverty, its causes and cure; wages and standards of living; congestion of population; crime and delinquency; unemployment; child labor; women in industry; occupational diseases; workmen's compensation; old-age pensions and social insurance; profit-sharing; communism; coöperation; socialism; syndicalism. Lectures and discussions. Open to all juniors and seniors. Divisible course.

Three hours, through the year.

Omitted in 1921-22.

See also Geography 272b, **ECONOMIC GEOGRAPHY OF EUROPE**, page 53.

COURSES IN GOVERNMENT

I. PRIMARILY FOR UNDERGRADUATES

12a. **AMERICAN GOVERNMENT AND POLITICS.** A study of the structure and operation of American political institutions, including a description of the activities of federal, state, and municipal government and of the organization and operation of political parties.

Three hours, first semester.

Omitted in 1921-22.

12b. **GOVERNMENTS AND PARTIES IN EUROPE.** A comparison of the constitutional and party systems of the leading European states, with an examination of the chief problems of a domestic nature confronting their respective governments, and the attitudes of political groups thereon.

Three hours, second semester.

Omitted in 1921-22.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

213a. THE PRINCIPLES OF POLITICS. An introduction to systematic political science, consisting in an analysis of the fundamental problems involved in the origin and nature of the state, its functions, and its organization.

Three hours, first semester.

Omitted in 1921-22.

214b. AMERICAN POLITICAL IDEAS. A critical study of the history of American political theories in relation to the economic and social environment in which they developed and the party organizations which espoused them. Current political conceptions are traced to their source, and contemporary tendencies in political thinking are analyzed.

Three hours, second semester.

Omitted in 1921-22.

215. THE AMERICAN CONSTITUTIONAL SYSTEM. This course is an intensive examination of the American political system of the present day. It includes a study of the formation of the federal constitution, the leading principles of constitutional interpretation, the expansion of the scope of federal activities, and the problems arising from "freedom of contract" and the "police power."

Three hours, through the year.

Omitted in 1921-22.

DEPARTMENT OF PSYCHOLOGY

PROFESSOR SANFORD, PROFESSOR PORTER,* PROFESSOR BORING
PROFESSOR YOUNG,† MR. PRATT, MR. ROBACK‡

The Department of Psychology offers both elementary and advanced courses covering a considerable range of topics. All the facilities of the Department are available to any student registered in it, according to his ability to profit by them. Undergraduates of demonstrated competence will not be refused an opportunity to participate in researches for which they are prepared, and graduate students whose preparation is anywhere defective will have opportunity in the elementary courses for making up their deficiencies without the abandonment of their advanced work.

*Absent on leave October 1921 to March 1922. Resigned March 1922.

†To begin work with the year 1922-23.

‡Lecturer second semester.

LIBRARY FACILITIES

The University Library contains an unusually large collection of psychological literature and literature in related departments, all of which is freely available to students. The Library is especially rich in scientific periodicals and the proceedings of learned societies, and maintains the files of seventy-five journals or other serials of a strictly psychological character. The Laboratory of Experimental Psychology has also an independent working library of psychological books and periodicals which are shelved in the journal room.

THE PSYCHOLOGICAL LABORATORIES

The Laboratories of Experimental Psychology occupy twenty rooms on the upper floor of the Main Building of the University. These rooms, as at present arranged, are devoted to the following purposes: Lecture room, journal room with the departmental library, photographic dark room, workshop, drafting-room, offices, experimental dark room, general apparatus-room, and rooms used for research purposes and devoted to the housing of apparatus for vision, audition, taste and smell, the cutaneous and organic senses, attention and perception, and the complex mental processes. The Laboratories are well equipped with general apparatus, and have an annual appropriation sufficient to provide for the purchase and manufacture of such apparatus as may be required from time to time for special investigations. The workshop contains a power-lathe, a power-drill, and an equipment of tools and materials for the manufacture and repair of apparatus.

COURSES IN PSYCHOLOGY

I. PRIMARILY FOR UNDERGRADUATES

112a. GENERAL PSYCHOLOGY. An introductory course designed to present the facts and laws of the mental life in their larger outlines and to lead the student to a rational understanding of his own mental processes. With this end in view the problems of action and of learning will receive especial attention, though no important aspect of the normal mental life will be neglected, and no effort will be spared to make all matters treated as real and concrete as possible by demonstrations, experiments, and class discussions. Text-book, informal lectures and collateral reading.

This course forms a natural approach to all the advanced

courses offered and is a definite prerequisite to all except courses 14 and 15b. Open to freshmen with the consent of the instructor.

Three hours, first semester.

PROFESSOR SANFORD

To be offered in 1922-23 as Psychology 11, through the year. An indivisible course, not open to freshmen, to be given by Professor Young.

14. SOCIAL PSYCHOLOGY. This course will be devoted first to a survey of the chief facts and methods of Psychology which are of value in the understanding of human social life. The relations of Social Psychology to Sociology, History, Education, and other branches of Psychology will be discussed. Emphasis will be given to the mental aspects of reflexes and instincts, as factors in social behavior. The results of recent investigations of habit-formation, of reasoning, and of individual differences, will be studied for their significant relations to group behavior. Some of the more important and definite facts of imitation, feeling, and emotion will be discussed for the purpose of understanding the nature and growth of conventions, customs, and modifications of these in human social life. Open to students other than freshmen who have had or are taking either Psychology 11 or Political and Social Science 11.

Three hours, through the year.

PROFESSOR SANFORD

Not to be offered in 1922-1923. See course 202.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

201. EDUCATIONAL PSYCHOLOGY. The aim of this course is a consideration of the learning process in its various aspects and in its dependence upon man's original tendencies and capacities. Such topics as attention, memory, thinking, play, morals, and religion will be taken up in their educational bearings. A brief account of normal human development from birth to the end of the school period will be given, together with a sketch of the methods of mental measurement and of the tests and scales for school accomplishment which have been worked out during the last few years. Text-book, discussions, informal lectures, and demonstrations. Open to juniors and seniors. Psychology 11 or its equivalent is a highly desirable preparation, but is not a prerequisite. Not a divisible course.

Three hours, through the year.

PROFESSOR SANFORD

New course. Not to be offered in 1922-23.

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Prof Sanford

202. SOCIAL AND ETHNIC PSYCHOLOGY. This course will be devoted to a study of man's instinctive tendencies as they show themselves in his relations with his fellow men. Such topics as custom, convention, psychic contagion, and the mob spirit will be discussed, as well as man's great social achievements such as language, government, morals, and religion. Informal lectures, text-book, discussions, and collateral readings. Open to juniors and seniors. Not a divisible course.

Three hours, through the year.

PROFESSOR YOUNG

New course. To be offered in 1922-23.

203. EXPERIMENTAL PSYCHOLOGY. A demonstrational and laboratory practice course intended to acquaint the student with the chief types of psychological experimentation, to give him first-hand experience of fundamental psychical phenomena under experimental conditions, with practice in observing and reporting them, and to initiate him, so far as time permits, into the laboratory arts and procedures. Open to students who have completed Psychology 11 or its equivalent. Not a divisible course.

Two laboratory periods of *three hours* each, through the year.

PROFESSOR SANFORD AND MR. TINKER

New course. To be offered in 1922-23.

26b. EDUCATIONAL PSYCHOLOGY. Lectures and discussions dealing with the learning process, with special reference to methods of study and the teaching of how to study. The course will consider generally such topics as attention, memory, reasoning, and the intellectual processes. Open to graduate students, and to undergraduates who have had course 11a.

Three hours, second semester.

PROFESSOR SANFORD

Not to be offered in 1922-23. See course 201.

28a. EXPERIMENTAL PSYCHOLOGY: ELEMENTARY LABORATORY. The purpose of this course is to familiarize the student at first hand with his own mental processes and the fundamental laws of the psychophysical organism. It is designed to afford an understanding of scientific methods in observation as applied to mental material. Open to graduates, to undergraduates who have had course 11a, and by special permission to undergraduates who have had introductory courses in Psychology other than course 11a. Three laboratory periods per week.

Three hours, first semester. Repeated in the second semester as course 28b. PROFESSOR BORING, MR. PRATT, AND ASSISTANT
Not to be offered in 1922-23. See course 203.

29b. EXPERIMENTAL PSYCHOLOGY: ADVANCED QUALITATIVE LABORATORY. This course is arranged to meet the needs of those students who are specializing in Psychology, and consists in a systematic presentation, by laboratory work and occasional lectures, of the method of observation in Experimental Psychology. The laboratory work will be varied to suit the qualifications of individual students. Baird's *Laboratory Manual* is used as text. Open to graduates, and to undergraduates who have taken course 28a. Three laboratory periods per week.

Three hours, second semester. MR. PRATT AND ASSISTANT
Not to be offered in 1922-23. See course 203.

210a. EXPERIMENTAL PSYCHOLOGY: QUANTITATIVE LABORATORY. A course of lectures and laboratory work dealing with the methods of psychophysical measurement and with mental measurement in general. The laboratory work will be based on Titchener's *Student's Quantitative Manual*. One lecture and two laboratory periods per week. Open to graduates, and to undergraduates who have taken course 28a or its equivalent.

Three hours, first semester. MR. PRATT AND ASSISTANT
Not to be offered in 1922-23. See course 203.

211. EXPERIMENTAL PSYCHOLOGY: PROBLEMS. The experimental investigation of minor psychological problems. The course is intended as an introduction to experimental research and serves as an initiation into independent work for undergraduates specializing in Psychology. The work is conducted under the immediate supervision of the staff of the laboratory, and may result in publication. Open by special permission to students whose *major* is Psychology, who should in general have had course 29b or course 210a.

Hours and credit to be arranged.

PROFESSOR BORING, MR. PRATT, AND ASSISTANT
Not to be offered in 1922-23. See course 203.

212. SYSTEMATIC PSYCHOLOGY: SIMPLE PROCESSES. A course of lectures dealing with sensation, feeling, simple image, and attention. Open to graduates who have had an introductory

course in Experimental Psychology, and to Seniors who have had at least course 13b or course 28a.

Three hours, through the year.

PROFESSOR BORING

Omitted in 1921-22.

Not to be offered in 1922-23.

213. SYSTEMATIC PSYCHOLOGY: COMPLEX PROCESSES. A course of lectures dealing with perception, association, memory, imagination, action, thought, and emotion. Open to graduates who have had an introductory course in Experimental Psychology, and to seniors who have had at least course 13b or course 28a.

Three hours, through the year.

PROFESSOR BORING

Not to be offered in 1922-23.

214b. MENTAL MEASUREMENT. A coöperative study of the most promising intelligence tests and other methods of mental measurement. Members will report frequently on results of investigations already made by others or on problems worked out by themselves. For graduates and qualified undergraduates.

Two hours, second semester.

MR. ROBACK

Not to be offered in 1922-23. See course 303.

3. PRIMARILY FOR GRADUATE STUDENTS

301. COMPARATIVE AND GENETIC PSYCHOLOGY. A general account of mental development in animals and in man. The work of the first semester will trace the increasing complexity of animal behavior from the micro-organisms to the anthropoid apes with special attention to experimental studies. The work of the second semester will begin with a review of the principles of human heredity and will then trace the bodily and mental development of the human individual from birth to maturity. The course will consist of informal lectures, collateral reading, and conferences for coöperative study.

Two hours, through the year.

PROFESSOR SANFORD

New course. To be offered in 1922-23.

302. ADVANCED GENERAL PSYCHOLOGY. A study of the major problems of psychological science in the light of biology, physiology, psychiatry, and the psychological laboratory.

Two hours, through the year.

PROFESSOR SANFORD

New course. Not to be offered in 1922-23.

303. MENTAL MEASUREMENTS. A theoretical and practical study of the schemes proposed for measuring native human capacity and for evaluating educational efficiency. Text-book and lectures together with practice work in testing and in statistical calculations.

Three hours, through the year.

PROFESSOR YOUNG

New course. To be offered in 1922-23.

304. PSYCHOLOGICAL SEMINAR. Devoted in 1922-23 to selected topics in current psychological literature.

One two-hour period, through the year. PROFESSOR SANFORD

305. RESEARCH. All students majoring in the Department of Psychology for either of the advanced degrees will be expected to undertake a suitable research problem under the direction of the head of the Department.

317. BEHAVIORISM, PSYCHOBIOLOGY AND FREUDIANISM. An expository and critical consideration of human behavior and the conditions that determine it. The course will of necessity traverse some portions of the fields of genetic psychology and psychiatry, and will make some demand upon the biological knowledge of those who follow it. At least one year's previous work in Psychology is an essential preliminary.

One lecture and one conference period per week, through the year.

PROFESSOR SANFORD

Not to be offered in 1922-23.

319. SEMINAR IN EXPERIMENTAL PSYCHOLOGY. The systematic development of some topic in Experimental Psychology. Open to graduate students *by invitation only*.

One evening per week, through the year. PROFESSOR BORING

Not to be offered in 1922-23.

DEPARTMENT OF ROMANCE LANGUAGES

PROFESSOR CHURCHMAN, ASSISTANT PROFESSOR METIVIER, MR. MELLOR*

See the statement of the general requirement in foreign language, page 37, for all candidates for the A.B. degree.

As now organized, the courses in this Department are planned with the following ends in view: French 11 and 12 are the basic language courses, in which it is the purpose to develop reading

*Appointment begins in the academic year 1922-23.

ability with at least a beginning of writing and speaking; when possible a student should take the full twelve hours of this sort of work. To the student who has completed 12, courses 13 and 14 offer an option between a continuance of general language work and a course limited to translation and literature; both may of course be taken. Those who have completed 13 or 14 may take 15 and 16—courses in which the literature of two important centuries is studied intensively. Prospective teachers will take course 27, either conjointly with 13, or after completing that course. The other courses are self-explanatory.

Courses 27a and 27b may be taken for credit by graduates and undergraduates. All the others are primarily for undergraduates.

A *major* in Romance Languages consists of at least twenty-four semester hours selected from the courses described below; but not more than twelve semester hours in elementary courses (French 11, Italian 11, and Spanish 11) may be counted in a *major*. The attention of students intending to *major* in Romance Languages is called to the statement concerning the required courses in Greek or Latin, on page 36.

When conditions warrant, this Department is prepared to offer the following additional three-hour courses or others of a similar nature:

III. BRIEF SURVEY OF FRENCH LITERATURE IN ENGLISH TRANSLATIONS.

118. FRENCH LITERATURE OF THE EIGHTEENTH CENTURY.

119. INTENSIVE STUDY OF SELECTED FRENCH AUTHORS.

COURSES IN FRENCH

I. PRIMARILY FOR UNDERGRADUATES

II. FOR BEGINNERS. Grammar, pronunciation, oral work, and composition, based on Fraser and Squair's *Elementary French Grammar*. Reading of easy modern French. The main purpose of the course is to develop reading ability. Not divisible.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

12. INTERMEDIATE. Reading of Modern French, with grammar, composition, pronunciation, and oral exercises. Course

12 is a continuation of course 11, and is also open to students who have had two years of high school French. Rapid review of Fraser and Squair's *Shorter French Course*. Reading from such works as Lamartine's *Jeanne d'Arc*, France's *le Livre de mon ami*, Labiche's *le Voyage de M. Perrichon* or *la Grammaire*, Halévy's *un Mariage d'amour*, selections from Daudet, Hugo's *Hernani*.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

13. ADVANCED FRENCH. This course is designed to continue and supplement the language work of course 12; it is also open to students who have had three years of high school French. Since the parallel course (14) offers ample opportunity for the development of reading ability, the emphasis in this course is placed upon the spoken and written language. The major part of the early work is devoted to a careful study of pronunciation and to a very rapid review of the elements of grammar in application to oral exercises according to the direct method (Ballard's *Beginners' French* being used). Immediately thereafter comes a survey of grammar and syntax in Fraser and Squair's *French Grammar* (new complete edition). The later months are largely devoted to rapid reading in the French short story (Buffum's edition, Holt), the material being handled in French oral and written exercises as often as possible. This course will ordinarily alternate with French 14.

Three hours, through the year.

PROFESSOR CHURCHMAN

Probably omitted in 1922-23.

14. GENERAL VIEW OF FRENCH LITERATURE. This course offers a general introduction to French literature with the triple purpose of meeting the needs of those who wish to gain some knowledge of that literature without doing the intensive linguistic work of French 13; of supplementing the work of French 13 by wider reading in good literature; and of laying the foundation for the specialized courses in the literatures of particular centuries. For students entering with the minimum preparation the only text to be read is the Vreeland and Michaud *Anthology of French Prose and Poetry* (Ginn); but all who enter with more than this minimum are expected to read collaterally along lines to which their tastes may lead them. Brief outline of the facts of French literature and discussion of literary values based upon Strachey's *Landmarks in*

French Literature (Holt). This course is open to students who have passed French 12 or who have had three years of French in the high school. It will ordinarily alternate with French 13.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1921-22.

110. ADVANCED COMPOSITION AND CONVERSATION. Designed to carry very far the student's command of the spoken and written language. Open ordinarily only to those who have passed French 13 with credit. The texts used are the latter half of Marique and Gilson's *French Composition* and R. T. Holbrook's *Living French*. Use is made of the phonograph. Much attention is given to the building of a vocabulary of common phrases.

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

112. SCIENTIFIC FRENCH. Open to students who have had three years of high school French, or French 12 in college. Daniels' *French Scientific Reader* (Oxford Press), Luquiens' *Popular Science* (Ginn) and Herdler's *Scientific French Reader* (Ginn).

Three hours, through the year.

ASSISTANT PROFESSOR METIVIER

NOTE: *This course may be counted toward the requirement in foreign language only by students majoring in Division A (Science), and may not be presented as the "third-year language course" to meet the divisional requirement in Division B.*

15. LITERATURE OF THE SEVENTEENTH CENTURY. A large amount of reading from the works of Corneille, Racine, Molière, Boileau, La Fontaine, Descartes, Pascal, La Rochefoucauld, Bossuet, La Bruyère, Mme. de Sévigné. Historical and critical survey of the literature of the period, based upon the Abry, Audic and Crouzet *Histoire illustrée de la littérature française*. The chief purpose of this course is to give the student a first-hand knowledge of the masterpieces of French classical literature, with a connected and critical knowledge of the literary history of the period. After a rapid survey of preceding centuries in Strachey's *Landmarks in French Literature* (Holt), and a brief outline study of the seventeenth century itself by means of Strachey and the Vreeland and Michaud *Anthology* (Ginn), the most important authors of the seventeenth century are intensively studied, with as wide reading from each as time allows, supplemented by class discussion and the

use of the manual for necessary information. No lectures or translating, the time in the class-room being devoted to discussion and reading in the original.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1921-22.

NOTE: *For admission to French 15 and 16, it is ordinarily expected that a student shall have passed French 14 with credit, but exceptionally good reading ability and a small amount of special preparation in the literature may occasionally make it possible to waive this condition.*

16. LITERATURE OF THE NINETEENTH CENTURY. Historical and critical survey, with wide reading from the most significant authors of the century. The spirit, method, and plan of the work are similar to those of course 15. First there is a brief survey of all of French literature by means of a skeleton outline and rapid reading of Strachey's *Landmarks in French Literature*. Next comes an outline study of the nineteenth century by means of Strachey and the *Anthology*. Then, after a somewhat detailed discussion of the later eighteenth century, follows the intensive study of the literary masterpieces of the nineteenth century, especially lyric poetry, drama, and the novel, accompanied by a discussion of the facts and comment contained in the Abry, Audic and Crouzet *Histoire illustrée de la littérature française* and in the writings of other critics. Few if any lectures, and no translation. For conditions of admission to this course see note above.

Three hours, through the year.

PROFESSOR CHURCHMAN

To be omitted in 1922-23.

2. FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

27a. AIMS AND METHODS OF TEACHING FRENCH, with incidental reference to German and Spanish. Lectures and collateral reading. Practice teaching, under critical supervision, according to both the direct and the text-book methods. This course is open to students who have passed with credit French 12 or German 12, or who have done the equivalent of one of these courses. A knowledge of both languages is desirable, but not necessary. Open to graduates and undergraduates.

Three hours, first semester.

PROFESSOR CHURCHMAN

Omitted in 1921-22.

27b. **TEACHERS' COURSE.** A more detailed and thorough study of the language in all its aspects, with especial reference to the technique of teaching. Review of the principles of pronunciation, accompanied by phonetic transcriptions. Topical study of the grammar, based, not upon a single text-book, but upon individual observation of French usage, and upon reference to several standard authorities. Themes in French. Collateral reading, with reports upon peculiarities of French construction and idiom. Continuation of practice teaching, as in course 27a. Familiarity with the spoken language is facilitated outside the class-room by the use of the phonograph. For admission to this course a student should have passed with credit the first semester of course 13. Open to graduates and undergraduates.

Three hours, second semester.

PROFESSOR CHURCHMAN

Omitted in 1921-22.

COURSES IN SPANISH

I. PRIMARILY FOR UNDERGRADUATES

11. **ELEMENTARY COURSE.** The Hills and Ford's *First Spanish Course*. Translation of simple prose. The first purpose of the course is to develop the ability to read, but a liberal use is made of oral and written exercises. Emphasis is divided between South America and Spain. Not divisible.

Three hours, through the year.

PROFESSOR CHURCHMAN

12. **ADVANCED COURSE.** Combination of readings from Spanish literature with more advanced study of the language, oral and written. Review of the more difficult exercises in the Hills and Ford's *First Spanish Course*, with references to Ramsey, and possibly further work in composition. Direct method work from Hanssler and Parmenter's *Beginners' Spanish*. Reading of representative masterpieces, e. g., *Don Quixote* (selections), plays by Lope and Calderón, one modern novel and one play, lyrics, and one book on some South American topic. Possibly a very brief outline of Spanish literature. Open to students who have passed course 11, or who have had two years of Spanish in the high school.

Three hours, through the year.

PROFESSOR CHURCHMAN

13. **THIRD YEAR SPANISH.** To be given when justified by the demand. Readings from Spanish literature and further work in

composition and speaking. Open to students who have passed course 12, or who have had three years of Spanish in the high school.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1921-22.

COURSES IN ITALIAN

I. PRIMARILY FOR UNDERGRADUATES

II. ELEMENTARY COURSE. The chief purpose of this course is to develop as rapidly as possible the ability to read Italian easily and accurately. As soon as a hasty survey of the elements of the language has provided the student with the necessary materials, reading is begun, and thereafter oral exercises, composition, and grammar are used simply as a means to greater facility in reading. Wilkins' *First Italian Book*; Grandgent's *Italian Grammar* (revised edition); Fogazzaro's *Peregrinages*; *Italian Short Stories* (Wilkins and Altrocchi); Manzoni's *I promessi sposi*; possibly a play of Goldoni's. In the second semester either the *Inferno* or the *Purgatorio* of Dante is read. Not divisible.

Three hours, through the year.

PROFESSOR CHURCHMAN

Omitted in 1921-22.

Register

GRADUATE STUDENTS

HONORARY FELLOWS

- LUCY DAY BORING, Worcester *Experimental Psychology*
A.B., Mount Holyoke College, 1908; Ph.D., Cornell University, 1912.

FELLOWS

- PAUL EDWARD ANDREW, Springfield, Mo. *Geography*
B.S., Drury College, 1911; B.S. in Ed., Southwestern Missouri Teachers College, 1918.
- MARJORY BATES, Waterville, Me. *Experimental Psychology*
A.B., Smith College, 1917; A.M., Clark University, 1920. Non-resident Fellow of Smith College.
- GORDON WARNER BROWNE, Worcester *Chemistry*
A.B., Clark University, 1920; A.M., 1921.
- CONRAL CLEO CALLIS, Sebree, Ky. *Chemistry*
A.B., Clark University, 1918; A.M., 1920.
- RALPH LOREN CHENEY, Springfield *Political and Social Science*
B.S., Oberlin College, 1898; B.H., International Y.M.C.A. College, 1901; M.H., 1916.
- MARY CATHERINE CLUNE, Somers, Conn. *Geography*
B.S., Columbia University, 1912; A.M., Smith College, 1917.
- GEORGE ALLEN COE, Worcester *Education and School Hygiene*
B.H., International Y.M.C.A. College, 1909; A.M., Clark University, 1914.
- ROBERT JOSIAH CONKLIN, Montclair, N. J. *History and International Relations*
B.H., International Y.M.C.A. College, 1920.
- ANDREW FISH, Eugene, Ore. *History and International Relations*
A.B., University of Oregon, 1919; A.M., 1921.
- HENRY M. HALVERSON, Worcester *Experimental Psychology*
Ph.B., University of Wisconsin, 1915; A.M., State University of Iowa, 1918; Ph.D., Clark University, Feb. 1922. Research Assistant in Experimental Psychology.
- PRESTON EVERETT JAMES, Worcester *Geography*
A.B., Harvard University, 1920; A.M., 1921.
- HUGH LLEWELLYN KEENLEYSIDE, Vancouver, Can. *History and International Relations*
B.A., University of British Columbia, 1920; A.M., Clark University, 1921.
- HERMAN FLETCHER KURTZ, Kalamazoo, Mich. *Chemistry*
A.B., Kalamazoo College, 1918; A.M., Clark University, 1920.
- CHARLEY ALEXANDER LINDLEY, Union City, Ind. *History and International Relations*
A.B., Indiana University, 1921.
- ARTHUR JULIUS NELSON, Worcester *History and International Relations*
A.B., Clark University, 1919.
- THOMAS PRESTON PEARDON, Vancouver, Can. *History and International Relations*
B.A., University of British Columbia, 1921.

Degrees granted June 12, 1922.

Wrote compl. + dipl. delivered June 23 (Name to be listed with)
class of '22

Candidates for Collegiate Degrees

Bachelor of Arts

Francis Nelson Alquist	Charles Austin Metcalf
James Edmund Bates	Max Millman
Mendall Benjamin	John Austin Moran
Fredrick Lovell Bixby	Aaron Nadler
Elmer Irving Campbell	Alanson Williston Parkes, Jr.
Chenchang William Chang	Allan Baker Partridge
Angelos Theophilus Gabriel Chaoush	Roland Edward Partridge
Curtis Damon	Valmore Alexis Pelletier
Thomas Kelly Egan	Stewart Marquand Pratt
Kenneth Charles Everett	Alfred James Riant†
John Vincent Ford	Charles Edward Rouse
Alexander David Ross Fraser	Robert James Rowland
Ernest Hard	Robert Charles Schultheiss
George Franklin Howe	Sherwood Harry Small†
Warren Main Humes	Henry Herman Sommerman
Leo Ivok†	Ralph Eills Sturtevant
Armen Krikore Krikorian	George Robert Thompson
Albert LaFleur	Edward John Warmbler
Edward Levine	Carl Albert Williams
Theodore Roosevelt Loomis	Warren Bailey Winn
Chi-Hsiung Yung	

wrote completed
diplomas
delivered

wrote and
compl. in 1922.

With Honor

George Tashamka Davis*	Isaac Rabinovitz
Laurence Standley Foster	Everett Verner Stonequist

Annual Collegiate Honors

SENIORS

First Honors

Everett Verner Stonequist

Second Honors

Mendall Benjamin	Max Millman
Laurence Standley Foster	Roland Edward Partridge
Isaac Rabinovitz	

* Degree conferred February 6, 1922† Degree to be conferred upon completion of a small amount of additional work

on George Tashamka, legal change of name
to Davis (H.P.) subsequent to this date.

Geo Baker

H. H. Thayer

1922.

Philip Landry

V. B. White

Feb 1922

Annual Collegiate Honors - continued

JUNIORS

Second Honors

Frank Herbert Fowler
Donald Ellwood Higgins

Frank Jacobson
Lester Perrine White

FRESHMEN

Second Honors

Henry Caradonna
Abraham Maurice Lipschitz

Richard Merrill Saunders
Jacob Isador Yanofsky

Graduate

Candidates for University Degrees

Master of Arts

- | | |
|---|---|
| <p> <i>Ms.</i> Paul Edward Andrew
 <i>F&SH</i> Dwight Sylvester Banks
 <i>Ch.</i> George Everett Boylan
 <i>Ch.</i> Guy Harvey Burnham
 <i>P&S</i> Ralph Loren Cheney
 <i>Ms. R</i> Robert Josiah Conklin
 <i>Ch.</i> Israel Zelig Crock
 <i>P&S</i> George Tashamka Davis
 <i>Ch.</i> George Fletcher DesAutels
 <i>P&S</i> Charles Alexitus Dickinson
 <i>Ch.</i> Everett Carroll Donnelly
 <i>Ms. R</i> Emil Ericson
 <i>P&S</i> Earl Wilbur Flohr
 <i>Ch.</i> Harold Joseph Gay
 <i>P&S</i> Joseph Sidney Gould
 <i>Ch.</i> Willard N. Greer
 <i>F&SH</i> Howard Henry House
 <i>Ch.</i> Ernest William Johnson
 <i>Ms. R</i> Sarah Evelyn Jones
 <i>P&S</i> Clifford Kirkpatrick
 <i>Ch.</i> Kenneth Hawley Knight
 <i>Ch.</i> Joseph Kunin
 <i>Ms. R</i> John Henry Wuorinen </p> | <p> <i>Ms. R</i> Paul Emile Landry
 <i>"</i> Philip René Landry
 <i>"</i> Charley Alexander Lindley
 <i>P&S</i> Malcolm Kairke Macdonald
 <i>F&SH</i> Alexander Benjamin MacLeod
 <i>F&SH</i> Ellen Augusta Maher
 <i>P&S</i> Elisabeth Fallin Möller
 <i>Ms. R</i> Arthur Julius Nelson
 <i>"</i> John Burke O'Leary
 <i>"</i> Thomas Preston Peardon
 <i>Ch.</i> William Lewis Phinney, Jr.
 <i>Ch.</i> Charles Scott Porter
 <i>P&S</i> Attilio Mario Rizzolo
 <i>Ch.</i> Edward Dow Russell
 <i>Ch.</i> William Henderson Ryer
 <i>F&SH</i> Margaret Jane Saunders
 <i>Ms. R</i> Luke Edward Shannon
 <i>Ch.</i> Harold Manton Smith
 <i>P&S</i> Mary Alice Smith
 <i>P&S</i> Miles Albert Tinker
 <i>Ch.</i> Charles Cole Towne
 <i>Ch.</i> Walter David Wood </p> |
|---|---|

Doctor of Philosophy

- | | |
|---|--|
| <p> <i>Ms.</i> Mildred Allen
 <i>Ms.</i> Marjory Bates
 <i>Ms.</i> Conral Cleo Callis
 <i>Ms.</i> Mary Catherine Clune </p> | <p> <i>Ms.</i> George Allen Coe
 <i>Ms.</i> Frederick Morse Cutler
 <i>Ms.</i> Clarence Nichols Hickman
 <i>Ms.</i> Herman Fletcher Kurtz </p> |
|---|--|

Henry M. Halverson Feb 1922

J IEN RIKIMARU, Tokio, Japan Graduate, Tokio Imperial University, 1919.	<i>Education and School Hygiene</i>
ATTILIO RIZZOLO, Newark, N. J. B.H., International Y.M.C.A. College, 1921.	<i>Psychology</i>
RAPHAEL ROSEN, Baltimore, Md. A.B., Johns Hopkins University, 1916; A.M., 1920.	<i>Chemistry</i>
WILLIAM VYNE SESSIONS, Worcester B.S., Worcester Polytechnic Institute, 1917; M.S., 1921.	<i>Chemistry</i>
LUKE EDWARD SHANNON, Worcester A.B., Clark University, 1921.	<i>History and International Relations</i>
JULIA MARY SHIPMAN, Worcester B.E., Boston University, 1920.	<i>Geography</i>
ALLEN BYRON STOWE, Otsego, Mich. B.S., Kalamazoo College, 1920; A.M., Clark University, 1921. Laboratory Assistant in Chemistry.	<i>Chemistry</i>
JESSE ELMER SWITZER, Valley City, N. D. B.S., University of Chicago, 1911.	<i>Geography</i>
EARLE FORRESTER WHYTE, Truro, N. S. B.A., Dalhousie University, 1920; M.A., 1921; Special Research Fellow* in Chemistry, Research Assistant in Chemistry.	<i>Chemistry</i>

HONORARY SCHOLARS

HAROLD JOSEPH GAY, Troy, N. H. A.B., Harvard University, 1919.	<i>Mathematics</i>
WILLIAM LEWIS PHINNEY, Worcester B.S., Dartmouth College, 1920.	<i>Mathematics</i>
CHARLES SCOTT PORTER, Northampton A.B., Amherst College, 1919.	<i>Mathematics</i>

SCHOLARS

REGINALD JOHN ALDEN, Springfield	<i>Education and School Hygiene</i>
DWIGHT SYLVESTER BANKS, Portsmouth, N. H. B.R.E., Boston University, 1921.	<i>Education and School Hygiene</i>
WILLIAM FRANCIS BOWEN, Worcester A.B., Holy Cross College, 1921.	<i>Political and Social Science</i>
GEORGE EVERETT BOYLAN, Worcester A.B., Clark University, 1921.	<i>Chemistry</i>
FRED JOSEPH BRENNAN, Worcester A.B., Clark University, 1917; A.M., 1918.	<i>History and International Relations</i>
GUY HARVEY BURNHAM, Worcester A.B., Clark University, 1916.	<i>Geography</i>
JOSEPH CHILK, Worcester A.B., Clark University, 1920.	<i>Political and Social Science</i>
ISRAEL ZELIG CROCK, Worcester A.B., Clark University, 1921.	<i>Chemistry</i>

*This Fellowship is in part supported by a grant from the Warren Fund of the American Academy of Arts and Sciences.

- FREDERICK MORSE CUTLER, Worcester *History and International Relations*
A.B., Columbia University, 1895; B.D., Union Theological Seminary, 1898.
- GEORGE FLETCHER DES AUTELS, Kalamazoo, Mich. *Chemistry*
B.S., Kalamazoo College, 1921.
- BURT LEE DEXTER, Worcester *History and International Relations*
A.B., Bates College, 1913.
- EVERETT CARROLL DONNELLY, Worcester *Geography*
A.B., Holy Cross College, 1921.
- FRANCIS JOHN DORAN, Worcester *Geography*
A.B., Holy Cross College, 1921.
- HENRY BYRON ELKIND, Worcester *Psychology*
M.D., Tufts College Medical School, 1915.
- EMIL ERICSON, Fabyan, Conn. *History and International Relations*
A.B., Clark University, 1919.
- ALBERT FARNSWORTH, Worcester *History and International Relations*
Ph.B., Brown University, 1910; A.M., Clark University, 1921.
- EARL WILBUR FLOHR, New Windsor, Md. *Psychology*
A.B., Bridgewater College, 1916.
- JOSEPH SIDNEY GOULD, Detroit, Mich. *Political and Social Science*
A.B., Clark University, 1921.
- WILLARD N. GREER, Richland, Mich. *Chemistry*
B.S., Kalamazoo College, 1921.
- WILLIAM CONRAD HIMMER, Worcester *History and International Relations*
A.B., Harvard University, 1917; A.M., Clark University, 1921.
- HOWARD HENRY HOUSE, Brookville, Kan. *Education and School Hygiene*
B.P.E., International Y.M.C.A. College, 1917.
- ERNEST WILLIAM JOHNSON, Worcester *Chemistry*
A.B., Clark University, 1921.
- SARAH EVELYN JONES, Winchendon *History and International Relations*
A.B., Bates College, 1919.
- IDA KAUFMAN, Worcester *Political and Social Science*
A.B., Hunter College, 1919.
- CLIFFORD KIRKPATRICK, North Leominster *Political and Social Science*
A.B., Clark University, 1920.
- KENNETH HAWLEY KNIGHT, Worcester *Chemistry*
A.B., Clark University, 1921.
- JOSEPH KUNIN, Worcester *Chemistry*
A.B., Clark University, 1921.
- PAUL EMILE LANDRY, Worcester *History and International Relations*
A.B., Clark University, 1921.
- PHILIP RENÉ LANDRY, Worcester *History and International Relations*
A.B., Clark University, Feb. 1922.
- WILLARD ELLIOTT LAWTON, Worcester *Chemistry*
B.S., Worcester Polytechnic Institute, 1920.
- JAMES HUGH LOUGHREY, Worcester *Chemistry*
A.B., Holy Cross College, 1921.
- MALCOLM KAIRKE MACDONALD, Lyndonville, Vt. *Experimental Psychology*
A.B., Clark University, 1921.

- ELLEN AUGUSTA MAHER, Worcester
Graduate, Worcester State Normal School, 1912. *Education and School Hygiene*
- FRANK MARTIN MOHLER, Springfield
A.B., Washburn College, 1904. *History and International Relations*
- ELISABETH FALLIN MÖLLER, Baltimore, Md.
A.B., Goucher College, 1921. *Experimental Psychology*
- ARTHUR BRUCE MORRISON, Worcester
A.B., Clark University, 1921. *Chemistry*
- JAMES ARTHUR O'LEARY, Worcester
A.B., Holy Cross College, 1921. *Geography*
- JOHN BURKE O'LEARY, Worcester
A.B., Holy Cross College, 1915. *History and International Relations*
- PAUL AXEL OLIN, Worcester
A.B., Clark University, 1921. *History and International Relations*
- GREN O. PIERREL, Worcester
B.S., Penn College, 1913; A.M., Clark University, 1917. *History and International Relations*
- GEORGE EDGAR RICE, Hareford, Tex.
A.B., Kingfisher College, 1921. *Physics*
- STANLEY ENOCH RODGERS, JR., Oak Bluffs
A.B., Clark University, 1921. *Chemistry*
- BURGESS B. ROSS, South Lancaster
A.M., Clark University, 1921. *Geography*
- HALLIE LOREE SNIDER ROSS, South Lancaster
A.M., Clark University, 1921. *Geography*
- EDWARD DOW RUSSELL, Worcester
A.B., Clark University, 1921. *Geography*
- JOSEPH FRANCIS RUSSELL, Grafton
A.B., Brown University, 1902; Graduate, Newton Theological Seminary, 1905. *History and International Relations*
- WILLIAM HENDERSON RYER, North Reading
A.B., Clark University, 1921. *Chemistry*
- MARGARET JANES SAUNDERS, Portland, Me.
B.Pd., Hartford School of Religious Pedagogy, 1921. *Education and School Hygiene*
- GUSTAV THEODORE SCHWENNING, Springfield
B.H., International Y.M.C.A. College, 1920; A.M., Clark University, 1921. *History and International Relations*
- CHESTER HINES SHIFLETT, Plainview, Tex.
A.B., Kingfisher College, 1921. *Chemistry*
- HAROLD MANTON SMITH, North Dana
A.B., Clark University, 1921. *Chemistry*
- MARY ALICE SMITH, Worcester
A.B., Smith College, 1917. *Political and Social Science*
- FRANCIS JEREMIAH SPLAINE, Worcester
A.B., Holy Cross College, 1921. *Geography*
- DWIGHT HARRISON THAYER, Montello
A.B., Clark University, Feb., 1922. *English*
- MILES ALBERT TINKER, Huntington
A.B., Clark University, 1921. *Psychology*
- CHARLES COLE TOWNE, Mendon
A.B., Clark University, 1921. *Chemistry*

JOHN LINCOLN WILLIAMS, Worcester
A.B., Bates College, 1911.

History and International Relations

WALTER DAVID WOOD, Worcester
A.B., Clark University, 1921.

Chemistry

JOHN HENRY WUORINEN, Gardner
A.B., Clark University, 1921.

History and International Relations

OTHER REGULAR STUDENTS

FLORENCE ISABEL ALDEN, Springfield
FREDERICK RAYMOND BUTLER, Worcester
B.S., Worcester Polytechnic Institute, 1920.

Education and School Hygiene
Chemistry

EMILIE CHARLOTTE CAASE, Worcester

History and International Relations

RACHEL MAY CLARK, Worcester
A.B., Wellesley College, 1916.

Geography

HOLLIS WESLEY COLWELL, Worcester
A.B., St. Stephen's College, 1921.

Political and Social Science

A. GERTRUDE COULSON, Worcester
B.S., in Ed., Boston University, 1921.

Education and School Hygiene

ELISABETH ANTHONY DEXTER, Worcester
A.B., Bates College, 1908; A.M., Columbia University, 1911.

History and International Relations

ROBERT CLOUTMAN DEXTER, Worcester
A.B., Brown University, 1912; A.M., 1917.

Political and Social Science

CHARLES ALEXIUS DICKINSON

Psychology

DOUGLAS EDWARD HOWES, Worcester
B.S., Worcester Polytechnic Institute, 1920.

Physics

ALEXANDER BENJAMIN MACLEOD, Leicester

Education and School Hygiene

ELLEN J. O'LEARY, Worcester
Graduate, Worcester State Normal School, 1912.

Education and School Hygiene

GEORGE TASHAMKA, Worcester
A.B., Clark University, Feb. 1922.

Political and Social Science

SPECIAL STUDENTS

ROBERT E. BODURTHA

History and International Relations

GEORGE H. BOYDEN

History and International Relations

HARRY A. BOYLE

Education and School Hygiene

ABRAHAM BRIND

Mathematics

SUSAN J. W. BROWN

Political and Social Science

ELLEN G. CALLAHAN

Geography

MARY M. CALLAHAN

Education and School Hygiene

ELIZABETH S. CAMPBELL

Geography

MILDRED CHRISTENSON

History and International Relations

MAY S. CLARK

Political and Social Science

HARRIET E. CLARKE

Political and Social Science

M. ETHEL COCHRAN

Geography

T. Davis
gal change
name.
M. Gierstedt
Davis: AB.
Tashamka

EDNA A. COLLAMORE	<i>Education and School Hygiene</i>
ALICE M. CONOLLY	<i>Education and School Hygiene</i>
MARGARET O. COOK	<i>History and International Relations</i>
OLIVER R. COOK	<i>History and International Relations</i>
LOUIS A. COTTLE	<i>Psychology</i>
ELIZABETH M. CRAIGHEAD	<i>Political and Social Science</i>
AGATHA E. DEVANEY	<i>Education and School Hygiene</i>
EARL M. DINGER	<i>Political and Social Science</i>
JOHN J. DROHAN	<i>Education and School Hygiene</i>
RUTH G. DULLIGAN	<i>Education and School Hygiene</i>
REBECCA FEINGOLD	<i>Political and Social Science</i>
ELIZABETH H. GORDON	<i>Education and School Hygiene</i>
CALVIN M. HAINES	<i>Psychology</i>
GEORGE D. HEARN	<i>Geography</i>
CAROLINE HOLLIS	<i>History and International Relations</i>
ERIC P. JACKSON	<i>Geography</i>
HARRY L. JACKSON	<i>Political and Social Science</i>
MARGARET JOHNSON	<i>Education and School Hygiene</i>
LILLIAN I. KING	<i>Education and School Hygiene</i>
ELISABETH M. LINCOLN	<i>Education and School Hygiene</i>
JEAN B. McIVER	<i>Geography</i>
MARGUERITE McKELLIGETT	<i>Education and School Hygiene</i>
MARY E. McMANUS	<i>Political and Social Science</i>
MARGARET E. MAHER	<i>Education and School Hygiene</i>
ANNA R. MALLOZZI	<i>Education and School Hygiene</i>
LOUISE N. MARVEL	<i>Geography</i>
ROBERT L. MOORE	<i>Political and Social Science</i>
DELIA G. O'CONNOR	<i>Education and School Hygiene</i>
EUGENIE M. OEHME	<i>Psychology</i>
MARY B. O'LEARY	<i>Education and School Hygiene</i>
HERMANN G. PATT	<i>Geography</i>
HELEN D. PIGEON	<i>History and International Relations</i>
SOPHIE ROME	<i>Political and Social Science</i>
MARGARET SIEBERT	<i>Education and School Hygiene</i>
PAULINE A. SMITH	<i>History and International Relations</i>
FRANK E. STOWELL	<i>Psychology</i>
EDWARD F. TOBIN	<i>Political and Social Science</i>
ETHEL G. WARD	<i>History and International Relations</i>
MAUDE E. WESBY	<i>History and International Relations</i>
MARY E. WHIPPLE	<i>Political and Social Science</i>

UNDERGRADUATE STUDENTS

Name	Class	Major	Home Address
ALQUIST, FRANCIS NELSON	1922	Chemistry	Fitchburg, Mass.
ARMITAGE, HAROLD BUTLER	1923	P.S.S.	Worcester, Mass.
BABCOCK, ROYAL RICHARDSON	1923	P.S.S.	Norwich, Conn.
BAKER, GEORGE ELISHA	1922	English	Northampton, Mass.
BARBER, GUS NICHOLS	Special	Chemistry	Greece
BASCOM, JAMES RAWSON	1924	P.S.S.	Leominster, Mass.
BATES, JAMES EDMUND	1922	English	Worcester, Mass.
BEEBE, THEODORE BLANCHARD	1924	English	Newark, N. J.
BENJAMIN, MENDALL	1922	Chemistry	Worcester, Mass.
BERGAN, JEROME FREDERICK	Special		Northampton, Mass.
BERGER, GUSTAF ERIC RUDOLPH	1923	Geography	Worcester, Mass.
BERMAN, JACOB	1924	P.S.S.	Colchester, Conn.
BIXBY, FREDERICK LOVELL	1922	Psychology	Ashburnham, Mass.
BLISS, LAWRENCE ELLIOT	1923	P.S.S.	Springfield, Mass.
BRIGHAM, CHARLES ALBERT	1924	Rom. Langs.	West Boylston, Mass.
BRIND, ABRAHAM	1923	Math.	Worcester, Mass.
BRODIE, WILLIAM	1924	P.S.S.	Worcester, Mass.
BRUNDAGE, LEMAN STONE, JR.	1924	P.S.S.	Bantam, Conn.
BRYANT, FRANK JOSEPH	1924	Physics	Worcester, Mass.
BUXTON, KENNETH SMITH	1923	Chemistry	Worcester, Mass.
CAMPBELL, ELMER IRVING	1922	P.S.S.	Dedham, Mass.
CARADONNA, HENRY	1924	Chemistry	Worcester, Mass.
CHANG, CHURCH	1924		Shanghai, China
CHANG, C. WILLIAM	1922	Biology	Kwangtung, China
CHAOUSH, ANGELOS THEOPHILUS GABRIEL	1922	P.S.S.	Smyrna, Asia Minor
CLARK, ROGER WALTER	1924		West Boylston, Mass.
CLARK, WENDELL JUSTIN	1924	English	Worcester, Mass.
CLEMENCE, HAROLD HOSEA	1923	Chemistry	Worcester, Mass.
COHEN, ISIDOR	1923	P.S.S.	Worcester, Mass.
COOKE, JAMES ARTHUR	1924	Physics	West Boylston, Mass.
CORTHELL, ALLAN WEBSTER	1924		Melrose, Mass.
COTTON, HERMAN M.	1924		Worcester, Mass.
COTY, FRANCIS JOSEPH	1924		Worcester, Mass.
COWDREY, CHARLES FRANCIS	1924	Rom. Langs.	Fitchburg, Mass.
CRONIN, FREDERICK TIMOTHY	1924	Biology	Ballardvale, Mass.
CUTLER, JOHN DANIEL	1923	P.S.S.	Mt. Hermon, Mass.
DAMON, CURTIS	1922	Chemistry	Ipswich, Mass.
DAVIS, LESLIE ARTHUR STUART	1923	Chemistry	Ayer, Mass.
DECOURCEY, JOSEPH COURTLAND	1923	Chemistry	Jacksonville, Fla.
DENNY, NATHAN JOSEPH	1924		New Haven, Conn.
DESPER, IRVING MAYNARD	Special	Chemistry	Worcester, Mass.
DIX, CHARLES TEMPLETON	1924	History	Southville, Mass.
DORWARD, ARTHUR REX	1924	P.S.S.	Worcester, Mass.
EGAN, THOMAS KELLY	1922	History	New London, Conn.
EKINS, HERBERT ROSLYN	1924	P.S.S.	Bridgeport, Conn.
ELLIOTT, RAY THEODORE	1923	Physics	Antrim, N. H.
ERICKSON, ROBERT SVEN	Special	P.S.S.	Worcester, Mass.
EVERETT, KENNETH CHARLES	1922	Chemistry	Lowell, Mass.
FEINBERG, HYMAN ISADORE	1924	P.S.S.	Worcester, Mass.
FERGUSON, ARTHUR WILLIAM	1923	English	Norwich, Conn.
FERGUSON, JOHN HENRY	1924		Worcester, Mass.
FERRARA, E. ADAM	1924	P.S.S.	Newark, N. J.
FINE, HENRY ROBERT	1924		Worcester, Mass.
FINKELSTEIN, HERMAN	1923	P.S.S.	New Britain, Conn.
FISH, PAUL STERLING	1924		Worcester, Mass.
FOLEY, GARDNER PATRICK HENRY	1923	English	Gloucester, Mass.

FORD, JOHN VINCENT	1922	English	North Uxbridge, Mass.
FORSBERG, RANDOLPH WOLFRED ARCHIBALD	1923	P.S.S.	Worcester, Mass.
FOSS, WESLEY BLAKE	1924	P.S.S.	Springfield, Mass.
FOSTER, LAURENCE STANDLEY	1922	Chemistry	Beverly, Mass.
FOWLER, FRANK HERBERT	1923	P.S.S.	Springfield, Mass.
FOX, WINSTON EARL	1923	P.S.S.	Worcester, Mass.
FRANCIS, WINTHROP ROBERT	1923	Physics	Avon, Mass.
FRANZ, ALBIN ERNEST	1923	English	Lawrence, Mass.
FRASER, ALEXANDER DAVID ROSS	1922	P.S.S.	Rome, N. Y.
FRENCH, NORMAN MOODY	1924	Chemistry	Worcester, Mass.
GELDARD, FRANK ARTHUR	1924	Chemistry	Lynn, Mass.
GIBBS, EVERETT HAYWARD	1924	Chemistry	Framingham, Mass.
GILBERT, RALPH WESLEY	1924	Mathematics	Leominster, Mass.
GOELLER, ROBERT BRUCE	1923	P.S.S.	Garden City, N. Y.
GOLDBERG, JOSEPH	1923	P.S.S.	Worcester, Mass.
GOLDEN, SHERMAN ELIAS	1923	Chemistry	N. Andover, Mass.
GLADDING, GEORGE ROGER	1924	Chemistry	Chester, Conn.
GOMEZ, WILLIS ERVIN	1924		Worcester, Mass.
GRANDONE, PETER	1924		Oxford, Mass.
GRATTAN, CLINTON HARTLEY	1923	History	Salem, Mass.
GROOP, WALDEMAR HERMAN	1923	P.S.S.	Fitchburg, Mass.
GUNTER, WILLIAM	1922	English	Worcester, Mass.
HALLEN, RUDOLPH OSWALD	1924		Leicester, Mass.
HAM, GEORGE EDWIN	1923	English	Worcester, Mass.
HAMMOND, ARTHUR NORTHWAY	1924	English	Leominster, Mass.
HANNAN, JAMES PHILLIPS	1924		Worcester, Mass.
HARD, ERNEST	1922	English	Bantam, Conn.
HAROOTIAN, SIMON GEORGE	1924	Chemistry	Worcester, Mass.
HARTHORN, J. WILSON	1924		Bangor, Me.
HASTINGS, RUSSELL BYRON	1924	Mathematics	Worcester, Mass.
HEALEY, RAYMOND FRANCIS	1924		Worcester, Mass.
HEFFERNAN, DANIEL JAMES	1923	Chemistry	Spencer, Mass.
HENDERSON, CLIFFORD RUSSELL	1924		Cherry Valley, Mass.
HIGGINS, DONALD ELLWOOD	1923	Physics	Marstons Mills, Mass.
HIGGINS, ROGER WOLCOTT	1923	English	Marstons Mills, Mass.
HOLLIS, JAMES FERN	1924		Brookline, Mass.
HOLMES, RICHARD MACDONALD	1923	History	Mt. Vernon, N. Y.
HOOD, EVERETT WESLEY	1923	P.S.S.	Millville, Mass.
HOWARD, PALMER PECKHAM	1923	History	Waterford, Conn.
HOWE, GEORGE FRANKLIN	1922	Chemistry	Worcester, Mass.
HUMES, WARREN MAIN	1922	P.S.S.	Sutton, Mass.
HUNTER, THOMAS, JR.	1923	History	Worcester, Mass.
IVOK, LEO	1922	P.S.S.	Worcester, Mass.
JACOBSON, FRANK	1923	Biology	E. Greenwich, R. I.
JALKO, TOIVO	1924		Fitchburg, Mass.
JOHNSON, CARL ALBERT	1924		Worcester, Mass.
JOHNSON, GEORGE GORDON	1924		Worcester, Mass.
JOHNSON, STANLEY ROBERT	1924		Worcester, Mass.
KING, CHARLES VALENTINE	1924		Hubbardston, Mass.
KNOWLTON, EDWIN EBENEZER	1923	Physics	West Ashford, Conn.
KNOX, WALTER FREDERIC	1923	P.S.S.	Worcester, Mass.
KRIKORIAN, ARMEN KRIKORE	1922	P.S.S.	New Haven, Conn.
LAFLAUR, ALBERT	1922	P.S.S.	Worcester, Mass.
LANDIN, HAROLD FRANCIS WILLIAM	1924	History	Worcester, Mass.
LANDRY, PHILIP RENÉ	1922	P.S.S.	Worcester, Mass.
LEHMANN, PAUL WILLIAM	1923	P.S.S.	Worcester, Mass.
LEONARD, ELMER CRAWFORD	1923	P.S.S.	Milford, Conn.
LEVENSOM, BENJAMIN	1923	History	Worcester, Mass.
LEVINE, EDWARD	1922	P.S.S.	New Haven, Conn.
LINDBERG, VITALES LETHINE	1924	History	Worcester, Mass.

LIPSCHITZ, ABRAHAM MAURICE	1924		Worcester, Mass.
LOOMIS, THEODORE ROOSEVELT	1922	P.S.S.	Windsor, Conn.
LYNCH, HAROLD EDWARD	1923	Chemistry	Worcester, Mass.
MANSUR, ERIC WOODALL	1923	Chemistry	Worcester, Mass.
METCALF, CHARLES AUSTIN	1922	Biology	Worcester, Mass.
MILLMAN, MAX	1922	Biology	Springfield, Mass.
MONTGOMERY, EUGENE PROUTY	1923	P.S.S.	Leicester, Mass.
MORAN, JOHN AUSTIN	1922	Psychology	Worcester, Mass.
NADLER, AARON	1922	Biology	Worcester, Mass.
NADLER, JACOB ERNEST	1923	Biology	Worcester, Mass.
NEAL, ARTHUR MORRILL	1923	Chemistry	West Boylston, Mass.
NESBITT, DONALD FREDERICK	1924		Chicopee Falls, Mass.
NICHOLS, CORYDON RICHARD	1923	Mathematics	Grafton, Mass.
NORTON, JAMES HAYES	1924		Whitinsville, Mass.
NUKI, DENMATSU	Special		Japan
NUTE, HAROLD ALFRED	Special	Chemistry	Worcester, Mass.
NUTTING, RAYMOND EDWIN	1924	Chemistry	Fitchburg, Mass.
O'BRIEN, JOHN FRANCIS	1923	P.S.S.	Williamantic, Conn.
OLSEN, WALTER WESLEY	1923	P.S.S.	Gardner, Mass.
PARKES, ALANSON WILLISTON, JR.	1922	Chemistry	Sandwich, Mass.
PARTRIDGE, ALLAN BAKER	1922	History	Worcester, Mass.
PARTRIDGE, ROLAND EDWARD	1922	P.S.S.	Boylston, Mass.
PEARSE, HARRY	1924	Biology	Southboro, Mass.
PELLETIER, VALMORE ALEXIS	1922	Chemistry	Avon, Mass.
PERLEY, ROSCOE LAWRENCE	1924		Melrose, Mass.
PERMAN, SAMUEL	1923	P.S.S.	Worcester, Mass.
PERRY, WILLIS CLINTON	Special		Worcester, Mass.
PIERCE, FREDERICK GODDARD	1924		Shrewsbury, Mass.
POPE, HENRY WILLIAM	1924	P.S.S.	Worcester, Mass.
POPKO, PETER FRANK	1923	P.S.S.	Worcester, Mass.
PORTFOLIO, PEPPINO	1924	P.S.S.	New York City
POTTER, NORWOOD CLARENCE	1924	P.S.S.	Worcester, Mass.
POTTS, WILLIAM GERALD	1924	P.S.S.	Worcester, Mass.
PRATT, STEWART MARQUAND	1922	P.S.S.	Worcester, Mass.
PRICE, DONALD LISLE	1924		Worcester, Mass.
PRICE, RONALD WILLIAM	1924		Worcester, Mass.
RABINOVITZ, ISAAC	1922	Physics	Worcester, Mass.
REGAN, EDWARD JOHN	1924		Worcester, Mass.
REYNOLDS, PAUL EVERETT	1924	English	Framingham, Mass.
RHODES, CECIL MARION	1924	P.S.S.	Cherry Valley, Mass.
RIANI, ALFRED JAMES	1922	P.S.S.	Marlboro, Mass.
RICHARD, WILFRED JOSEPH	1924		Avon, Mass.
RICHMOND, EUGENE	1924	Biology	Worcester, Mass.
RIFFOLT, NILS AUGUST	Special	Physics	Worcester, Mass.
RIPLEY, WILLIAM SENTER	1924		Cambridge, Mass.
ROBERTS, MILTON GEORGE	1924	Math.	Worcester, Mass.
ROSE, CLIFTON BOWEN	1924		Worcester, Mass.
ROUSE, CHARLES EDWARD	1922	English	Lynn, Mass.
ROWLAND, ROBERT JAMES	1922	Chemistry	Hartford, Conn.
ROY, LEO NELSON	Special		Worcester, Mass.
SACHS, JACOB YANK	1924	Psychology	New Haven, Conn.
SAFELY, FREDERICK ATHERTON	1923	P.S.S.	Cedar Rapids, Ia.
SAUNDERS, RICHARD MERRILL	1924	P.S.S.	Worcester, Mass.
SAWYER, ROLAND DARROW	1924		Ware, Mass.
SCHULTHEISS, ROBERT CHARLES	1922	P.S.S.	New Haven, Conn.
SCHULTZ, ISADORE ERWIN	1924	P.S.S.	Worcester, Mass.
SHALLOO, JEREMIAH PATRICK	1924	English	Concord, N. H.
SHOR, DAVID MEYER	1924	Biology	Worcester, Mass.
SLATE, SYLVESTER STANTON	1924		Bernardston, Mass.
SLEEPER, LEWIS MAXWELL	1924		Sherman Mills, Me.

SMALL, SHERWOOD HARRY	1922	P.S.S.	Worcester, Mass.
SMITH, HARMON ALLEN	1924	P.S.S.	Pomfret, Conn.
SMITH, ROBERT GEORGE	Special		Clinton, Mass.
SMITH, ROGER RAMSDELL	1924	Physics	Gardner, Mass.
SMITH, SHELDON BRUCE	1923	Histry	Bantam, Conn.
SOMMERMAN, HENRY HERMAN	1922	Mathematics	Southville, Mass.
STEVEN, ROBERT STEWART	1923	P.S.S.	Worcester, Mass.
STONEQUIST, EVERETT VERNER	1922	P.S.S.	Worcester, Mass.
STURTEVANT, RALPH EILLS	1922	History	Greenfield, Mass.
SWAN, PAUL RICHARD	1923	P.S.S.	Worcester, Mass.
TANNER, ELMO	1924		Worcester, Mass.
TASHAMKA, GEORGE	1922	P.S.S.	Worcester, Mass.
TAYLOR, HIRAM SYLVANUS, JR.	1923	Biology	Islington, Mass.
TEGELBERG, JULIUS JOHN	1922	Biology	Worcester, Mass.
THAYER, DWIGHT HARRISON	1922	P.S.S.	Montello, Mass.
THOMAJAN, PUZANT KEVORK	1923	P.S.S.	Worcester, Mass.
THOMAS, JOSIAH LINCOLN	Special		Middleboro, Mass.
THOMPSON, GEORGE ROBERT	1922	History	Leominster, Mass.
TOWNE, EDMUND BARKER	1924	Chemistry	Stafford Springs, Conn.
TOWNE, STANWOOD BARTLETT EUGENE	1923	Chemistry	Worcester, Mass.
WALL, ROY HENRY	1924	Chemistry	Worcester, Mass.
WARMBIER, EDWARD JOHN	1922	History	Meriden, Conn.
WHITE, LESTER PERRINE	1923	P.S.S.	Brooklyn, N. Y.
WHITE, VINTON ESTEN	1922	Biology	Uxbridge, Mass.
WILLIAMS, CARL ALBERT	1922	English	Haverhill, Mass.
WING, GEORGE SOULE, JR.	1924	Chemistry	Sandwich, Mass.
WINN, RICHARD WILKINS	1924	P.S.S.	Worcester, Mass.
WINN, WARREN BAILEY	1922	P.S.S.	Worcester, Mass.
WOOSTER, CHARLES BUSHNELL	1924	Chemistry	Deep River, Conn.
WYSE, NATHAN	1924		New Haven, Conn.
YANOFKY, JACOB ISADOR	1924	P.S.S.	Worcester, Mass.
YUNG, CHI-HSIUNG	1922	P.S.S.	Hong-Kong, China
ZWEIGBAUM, ABRAHAM	1923	P.S.S.	New Haven, Conn.

SUMMER SCHOOL

ACARD, IRVING H.	Spencer	CAREY, THOMAS ALBERT	Worcester
BACON, ALMA ARVILLE	Worcester	CARRIGAN, KATHERINE A.	Hopkinton
BAKER, EFFIE A.	Worcester	CASE, LUCY A.	Westminster, Vt.
BALL, EDYTHE R.	Worcester	CHAOSH, ANGELOS GABRIEL	Worcester
BARR, WILLIAM JOHN	Worcester	CHILDS, BERTA W.	Worcester
BARRETT, EMMA S.	Worcester	CLARK, JOHN BARTLETT	Worcester
BARTLETT, ASA	Webster	CLARK, THEDA MARION	Springfield
BARTLETT, SAMUEL SLATER	Webster	CLUNE, MARY C.	Springfield
BEAUMONT, LOUISE MARTHA	Worcester	COCKROFT, GRACE AMELIA	
BELCHER, SOPHIA ELISABETH	Worcester		Saratoga Springs, N. Y.
BILL, LUCY S.	Worcester	COE, GEORGE ALLEN	Grafton
BOLSTER, LILIAN A.	Springfield	COFFEY, GRACE C.	Worcester
BOSON, SVEA	Worcester	COLLAMORE, EDNA A.	Worcester
BRADLEY, MARY M.	Worcester	COOK, FLORENCE M.	Homestead, Pa.
BRAY, CLARA P.	Uxbridge	COTLE, WILLIAM ECKFORD	Brookfield
BRAY, HAZEL	Uxbridge	COURTNEY, ELLEN AGNES	Worcester
BRENNAN, FRED JOSEPH	Worcester	CRAFFEY, FRANCES E.	Westboro
BROWN, JAMES S.	Worcester	CRAGIN, BERNICE W.	Worcester
BROWN, MARTHA JANET	Worcester	CURTIS, ANNA L.	Worcester
BURNETT, PAUL L.	Leicester	CUTLER, FREDERICK MORSE	Worcester
CAASE, EMILIE CHARLOTTE	Worcester	DANA, ELIZABETH M.	Worcester
CAFFEE, BELLE	Worcester	DAY, GEORGE WILLIS	Lynn
CAREY, HELEN	Worcester	DEIBERT, ETHEL V.	Homestead, Pa.

C - Enrolled in College 1921-22

G " " Grad Sch. 1921-22

DEXTER, BERT L.	Worcester	LYTLE, CARL DEWING	Melrose
DOMINIS, BEATRICE L.	Worcester	McDERMOTT, ELLEN G.	Worcester
DONAHUE, MARY M.	Worcester	McGINNIS, GERTRUDE (Mrs.)	Brookline
DONOHUE, ALICE G.	Worcester	McHALE, MADELINE GENEVIEVE	New York City
DROHAN, JOHN J.	Worcester	McINTYRE, GRACE E.	Charlton
EKDAHL, ADOLPH GUSTAVUS	Syracuse, N. Y.	McKOAN, JOHN E.	Worcester
EKDAHL, NAOMI GOLDTHWAITE	Syracuse, N. Y.	McQUEENY, THERESA F.	Worcester
ELLIOTT, HARRIET ALBERTA	New Castle, Pa.	MANSUR, ERIC WOODALL	Worcester
FAGERSTROM, MARTHA	Worcester	MARCH, MRS. CLARA E.	Boylston
FARRELL, JEROME G.	Chicago, Ill.	MASON, MRS. ELEANOR A.	Worcester
FASSITT, ANDREW J., JR.	Cambridge	MATTHEWS, MARIETTA	Worcester
FERNALD, LILLIAN M.	Gardner	MILLER, PEARL A.	Worcester
FOGG, HELEN M.	Methuen, Mass.	MITCHELTREE, NANNIE LEASURE	New Castle, Pa.
FORD, ELIZABETH MAE	Springfield	MOONEY, ANNA THERESA	Worcester
FOSTER, GEORGE POTTER	Worcester	MORRIS, SYLENDA B.	Ellington, Conn.
FRUIT, LYDIA HELEN	Springfield	MORROW, CURTIS HUGH	Waterville, Me.
FRUBER, MARY ANNA	Framingham	MUFFIN, RACHEL ELIZABETH	Byfield
GAINSMAN, EDITH ABBIE	Worcester	MURPHY, SADIE A.	Worcester
GIBSON, BANKS CHAPMAN	New Haven, Conn.	MURRAY, JOHN E.	Worcester
GILMORE, ALICE C.	Westboro	NEWTON, CORA A.	Westboro
GOLDTHWAITE, ANNIE E.	Uxbridge	NUTE, HAROLD ALFRED	Worcester
GOODSPEED, MADGE L.	Worcester	O'BRIEN, WILLIAM SMITH	Greenwich, Conn.
GORMAN, RUTH EDITH	Worcester	O'CONNELL, JESSIE M.	Worcester
GOULD, MARY EARLE	Worcester	O'LEARY, JOHN BURKE	Worcester
GOULD, SARAH LYDIA	Worcester	O'NEIL, HELEN F.	Worcester
GRETHER, JOHN RICHARD	Jacksonville, Fla.	OSBORNE, LUCY ARVILLA	Worcester
HANCHETT, ANNIE MAY	Worcester	PARKER, AGNES CLARA	Uxbridge
HANDY, LE ROY MARSHALL	Worcester	PARKER, JESSIE L.	Montpelier, Vt.
HASLETT, MELBA	Worcester	PARNELL, GEORGIANA	Springfield
HEAGNEY, WILLIAM T.	Worcester	PARTRIDGE, ROLAND EDWARD	Boylston
HEALEY, ELLEN A.	Worcester	PATT, HERMAN GEORGE	Warren
HENDERSON, MILDRED AMY	Worcester	PEASE, HELEN KING	Springfield
HILTON, MABEL B.	Worcester	PERRIN, LLOYD WINFIELD	Blairstown, N. J.
LIODSKINS, GEORGIANA A.	Springfield	PHILLIPS, GEORGE A.	Holden
HOLDEN, FLORENCE GODDARD	Holden	POPE, HENRY WILLIAM	Worcester
HOLLIS, MRS. IRA N.	Worcester	POTTS, WILLIAM GERALD	Worcester
HOWARD, CLARENCE B.	Worcester	PRATT, STEWART MARQUAND	Worcester
HOWARD, ETHEL L.	Farmington, Me.	PUTNAM, LILIAN	Cliftondale
HOWE, HELEN A.	East Orange, N. J.	REED, GRACE M.	Springfield
HURLEY, MARGARET T.	Worcester	RICE, ALLAN GALE	Worcester
ILLINGWORTH, ROBERT STANLEY	Easton, Pa.	ROSS, MRS. B. B.	S. Lancaster
JAMES, PRESION EVERETT	Worcester	ROUVIE, AGNES SCOTT	Worcester
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JOYCE, HELEN M.	Worcester	SAHAGIAN, CHARLES H.	Worcester
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KNIGHT, GRACE GREEN	Hampton Falls, N. H.	SCHWAB, DOROTHY GROUSE	Merrimac, Mass.
LEBOEUF, IDA A.	Fall River	SCHWAB, WILLIAM KENDRICK	New Haven, Conn.
LEGER, RONALD E.	Worcester	SCOTT, MARGARET	Worcester
LEWIS, EMMA JEAN	Keene, N. H.	SHEA, MARY ELLEN V.	Worcester
LIBBY, MALCOLM	Worcester	SHEA, VERONICA	Ware
LINDGREN, DAGNE CAROLINE	Holden	SIMMONS, BERNHARD L.	Worcester
LOF, MARGUERITE WAHLBORG	Worcester	SMITH, MARY CUSHING	Fitchburg
LOMBARD, GRACE M.	Worcester	SMITH, MARY VICTORIA	Worcester
LUBIN, MARIAN	Worcester	SMITH, ROBERT GEORGE	Clinton
LUSE, RALPH G.	Granville, O.	SPARR, ALMA M.	Worcester
LYNCH, MARGARET E.	Uxbridge	SPLAINE, MAURICE J.	Worcester
LYON, CATHERINE EAGLE	Columbus, O.	SPOONER, MILDRED A.	Brattleboro, Vt.
LYON, LEROY A.	Townsend	STANTON, CORA A.	W. Chesterfield

STRATTON, ALICE I.	Framingham	WAITE, MARY A.	Worcester
STUART, MABEL LOUISE	Fall River	WALLACE, IDA F.	Nashua, N. H.
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TIMON, JAMES F., JR.	Worcester	WINTER, BLANCHE N.	Westboro
♣ TINKER, MILES ALBERT	Huntington	WOOD, CHARLES L., JR.	Philadelphia, Pa.
TOLMAN, ELLEN DEAN	Auburn	WOOD, CYRUS WYMAN	Worcester
UCHIYAMA, GENICHI	Kowana, Japan	YARNALL, ANNA	Philadelphia, Pa.
WAITE, EMMA FORBES	Worcester		

SUMMARY

Graduate students:

Fellows and scholars	88
Other regular students	13
Special students	52

Total

153

Undergraduate students:

Regular students	198
Special students	11

Total

209

Enrolled during regular school year

362

Summer school

192

Registrations during calendar year

554

Duplications

22

Total, excluding duplications

532

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Clark University Bulletin

Summer School Number



Worcester, Massachusetts

March, 1922

Clark University Bulletin

NUMBER 11

MARCH, 1922

Summer School Number

The Bulletin is published in January, February, March, April, May, October, November, and December

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Calendar

1922

JULY	10	Monday	8 a.m. Registration begins 12 m. Opening Assembly 8-10 p.m. Reception to Members of the Summer School by President and Mrs. Atwood, at the President's House
JULY	11	Tuesday	8 a.m. Lectures and Recitations begin
JULY	13	Thursday	8 p.m. Public Lecture on the Grand Canyon of the Colorado, by President Atwood (Illustrated)
JULY	18	Tuesday	8 p.m. Public Lecture on History and Social Intelligence, by Professor Barnes
JULY	20	Thursday	8 p.m. Public Lecture on the Yellowstone National Park, by President Atwood (Illustrated)
JULY	22	Saturday	Field Excursion to Mt. Tom and the Connecticut River Valley, conducted by President Atwood
JULY	25	Tuesday	8 p.m. Public Lecture on Types of Irish Drama, by Professor Illingworth
JULY	27	Thursday	8 p.m. Public Lecture on Glacier National Park, by President Atwood (Illustrated)
AUG.	1	Tuesday	8 p.m. Public Lecture, "Twofold Twain," by Professor Dodd
AUG.	3	Thursday	8 p.m. Public Lecture on Crater Lake and Mt. Ranier, by President Atwood (Illustrated)
AUG.	8	Tuesday	8 p.m. Public Lecture, "The Shavian Viewpoint," by Professor Dodd
AUG.	10	Thursday	8 p.m. Public Lecture on The Mesâ Verde, by President Atwood (Illustrated)
AUG.	15	Tuesday	8 p.m. Public Lecture by Professor Collier
AUG.	18	Friday	Work of the Summer School ends

Schedule of Lecture and Recitation Hours

INSTRUCTOR	8	9	10	11	12	1.30
ATWOOD			Geography 213	Geography 212		
BARNES	History 9	History 8				
BROOKS	Geography 122					Geography 224
CHURCHMAN						
COLLIER			French 1	French 43 History 6	History 7	
DODD		English 3	English 4			
GRUVER	Education 3	Education 4				
HANKINS		Social Science 2		Social Science 1 English 5		
ILLINGWORTH						Geography 141
JAMES		Geography 241			Geography 161	
RIDGLEY	Geography 261			Psychology 1		
SANFORD						
SPILLMAN		German 2				
THOMAS		Geography 252		Geography 251		

NOTE. All the above courses are Summer School courses. The symbol "SS" before the numeral, which distinguishes courses in the Summer School from those given during the regular academic year, is omitted.

Second Session of the Summer School

After a very successful opening session of the Summer School in 1921, the Trustees of Clark University have authorized its continuance for the coming summer. There seems to be good reason for believing that a Summer School in this location providing instruction in the subjects offered answers a real demand, and that summer school instruction will be a permanent part of the work of the University.

SUBJECTS OF INSTRUCTION

The coming session will be conducted along the same general lines as that of last year. Geography and History will constitute the chief departments of instruction. Courses will again be offered in Psychology, Education, and English, while work in Social Science will be substituted for that given last year in Civics. Several courses in modern foreign languages are again offered. It is hoped in the future to provide opportunity for work in other subjects, particularly the natural sciences.

The work of the Summer School will be intensive, and courses will meet five times a week. Enrolment in two courses will be considered full work for a student, and many students, it is believed, will find it advantageous to concentrate all their energies on the work of a single course.

LOCATION AND BUILDINGS

Clark University occupies a tract of ground lying between Main and Woodland and Maywood and Downing Streets in the city of Worcester, situated about a mile and a quarter from the City Hall, on one of the principal trolley lines. Some cars run directly from the Union Station past the University; other cars make connection at the City Hall with cars running south on Main Street which pass the University.

Besides the campus, with the academic buildings proper, the University owns a small athletic ground between Maywood and Beaver Streets, the Dining Hall and some unoccupied land at the corner of Woodland and Charlotte Streets, and the Hadwen Arboretum, on Lovell Street, about twenty acres in extent.

The office of the Summer School is located in the Main Building, which contains also the general offices of Clark

University, as well as the administrative offices of the Collegiate Department. In the Main Building are the Assembly Hall and many of the lecture and recitation rooms, and in this building most of the exercises of the Summer School will be held. The office of the President of the University is in the Library Building.

In the Science Building are located the lecture rooms and laboratories of the departments of Physics and Chemistry.

All the classroom, library, and laboratory facilities of the University, so far as they pertain to the subjects of instruction offered, will be at the disposal of the students of the Summer School.

THE LIBRARY

The Library of the University was provided with a generous endowment by the founder of the institution, and it affords especially favorable opportunities for study and research. It occupies a large and handsome building at the corner of Main and Downing Streets. The Library now owns almost 99,000 bound volumes and pamphlets, and the Reading Room receives approximately 500 journals.

In addition to the library facilities provided by the University, students may avail themselves of the privileges of other excellent libraries in the city. The Worcester Public Library contains some 242,000 volumes and makes accessible to the public about 600 newspapers and magazines. The library of the American Antiquarian Society, housed in the national headquarters of the Society, in Worcester, contains about 142,000 volumes, and some 212,000 pamphlets.

ADMISSION TO THE SUMMER SCHOOL

Graduates of colleges, technical schools, normal schools, or secondary schools, college students, and teachers in schools of any grade will be admitted as students upon submission of proper credentials. Other applicants will be admitted upon approval of their qualifications for the work which they desire to do.

REGISTRATION

Persons who desire to enter the Summer School should secure an application form from the Registrar at as early a date as possible and return it properly filled out. A registration fee of two dollars should be sent with the form when it is returned to the Registrar. This amount will be deducted from the tuition fee when the latter is paid.

It is exceedingly desirable that the registration of all students in all courses be completed on July 10. To this end students should as far as possible determine before the opening of the session through personal conference or correspondence with the Director or the various instructors the courses in which they expect to register.

As stated on page 5, enrolment in two courses will be considered full work for a student, but permission to take a third course will be granted to those who seem qualified to carry that amount of work successfully. Those who desire to register for a single course may do so.

Formal registration will begin Monday, July 10, at 8 A. M., in the Main Building. The opening assembly of the Summer School will be held in the Assembly Hall July 10 at 12 o'clock. All classes will meet on Tuesday, July 11.

CREDIT FOR WORK DONE

Some of the courses of instruction in the Summer School are of college grade, others are strictly graduate courses, and many are open both to graduate students and to undergraduates. The satisfactory completion of a course entitles the student to credit of three semester hours, which the Summer School will designate as undergraduate or graduate credit as the case may be.

Undergraduate credit earned in the Summer School counts, subject to the regulations of the Collegiate Department, toward the degree of Bachelor of Arts of Clark University*; and graduate credit earned in the Summer School may be used, under the regulations of the Graduate Board, to satisfy the requirements of graduate residence or of programs of work that lead to the graduate degrees of Clark University.

Attendance at four sessions of the Summer School will ordinarily be considered as fulfilling the residence requirements for the degree of Master of Arts, provided the student devotes his entire time during the sessions to graduate work. A thesis is required in addition to work done in courses. The degree of Doctor of Philosophy can not be secured by summer work alone.

A certificate, with a statement of work done and credit awarded, will be furnished at the close of the session to all students who desire it.

*Not more than six hours of credit earned in any one session, however, may be so counted.

Work done in the Summer School can be counted toward the fulfilment of the requirements for degrees in the Graduate School and Collegiate Department of the University only by students who have fulfilled the regular requirements for admission to candidacy for those degrees.

TUITION

Students taking two courses will pay a fee of thirty dollars; those who receive permission to take a third course will pay an additional fee of ten dollars. Those who desire to take but one course may do so upon payment of a fee of twenty dollars, which will entitle them also to all the special privileges of the Summer School.

Students registering in the Summer School who have not previously been enrolled in the Summer School or in some other department of Clark University are required to pay the recently established University matriculation fee of five dollars. This fee need not be paid again by students who return for subsequent summer sessions, or who at any later time take up at Clark University the work of the regular academic year.

Tuition may be paid at any time before the opening of the session, and must be paid by noon of Saturday, July 15. Checks should be made payable to the Bursar of Clark University.

OUTSIDE ACTIVITIES

Several additional features are being planned to increase the opportunities of students and instructors not only for practical profit from the everyday work of the lecture-room, but for relaxation and enjoyment as well. Among these are a course of public lectures, entertainments, and excursions to places of scientific or historic interest. The working schedule has been planned so that those who desire to take advantage of the excursions or independently to visit Boston or other neighboring cities at week-ends may do so without detriment to their regular work.

The University gymnasium and the Maywood street athletic ground provide opportunity for both indoor and outdoor exercise. The summer climate of Worcester is pleasant; periods of excessive heat like those of last summer are rare; and Lake Quinsigamond, at the edge of the city and easily accessible by trolley, offers excellent facilities for boating and canoeing. Coes Pond, within easy walking distance of the University, is a favorite resort of summer bathers.

PUBLIC LECTURES

Two courses of lectures, which will be open to all members of the Summer School without extra cost, have been arranged for Tuesday and Thursday evenings at eight o'clock. On Thursday evenings from July 13 to August 10 President Atwood will give a series of five lectures on our national parks. The Tuesday evening lectures will be provided by other members of the staff of instruction.

For persons not members of the Summer School the price of a ticket of admission to all the lectures of both courses will be five dollars; to all the lectures of either course, three dollars; to single lectures, seventy-five cents.

BOARD AND ROOMS

The University Dining Hall will be open during the session of the Summer School, and will provide table board at not more than six dollars and a half per week. Furnished rooms in the vicinity of the University may be secured at rates running from three dollars a week up. Two or more of the college fraternity houses will be available for the accommodation of a limited number of Summer School students.

Officers of Instruction and Administration

- WALLACE WALTER ATWOOD, PH.D. GEOGRAPHY
President of Clark University and Head of the School
of Geography
- CHARLES BREWSTER RANDOLPH, PH.D.
(Professor of German, Clark University) Director
of the Summer School
- HELEN GOSS THOMAS, A.B. GEOGRAPHY
Formerly Instructor in Geography, Wellesley College
- DOUGLAS CLAY RIDGLEY, A.B. GEOGRAPHY
Professor of Geography, Illinois State Normal Uni-
versity
- CHARLES FRANKLIN BROOKS, PH.D. METEOROLOGY AND CLIMATOLOGY
Associate Professor of Meteorology, Clark University
- PRESTON EVERETT JAMES, A.M. GEOGRAPHY
Instructor in Geography, Clark University
- THEODORE COLLIER, PH.D. HISTORY
Professor of History, Brown University
- HARRY ELMER BARNES, PH.D. HISTORY
Professor of History, Clark University
- FRANK HAMILTON HANKINS, PH.D. SOCIAL SCIENCE
Professor of Sociology, Clark University
- EDMUND CLARK SANFORD, PH.D., Sc.D., LL.D. PSYCHOLOGY
Professor of Psychology and Education, Clark Uni-
versity
- HARVEY SNYDER GRUVER, A.M. EDUCATION
Superintendent of Schools, Worcester
- LORING HOLMES DODD, PH.D. ENGLISH
Professor of English, Clark University
- ROBERT STANLEY ILLINGWORTH, A.B. DRAMATICS
Assistant Professor of Public Speaking, Lafayette
College
- PHILIP HUDSON CHURCHMAN, PH.D. FRENCH AND SPANISH
Professor of Romance Languages, Clark University
- GUSTAVUS L. SPILLMAN, A.B. GERMAN
Professor of German, University of Louisville
- CAREY EYSTER MELVILLE, A.B.
(Associate Professor of Mathematics and Collegiate
Registrar, Clark University) Registrar of the
Summer School

WALLACE WALTER ATWOOD

is a graduate of the University of Chicago, where he also received the degree of Doctor of Philosophy. From 1901 to 1913 he was a member of the Faculty of that University, going to Harvard in 1913 to be Professor of Physiography, a position which he held until he came to Clark, in the fall of 1920. He has headed numerous geographical expeditions to various parts of the American continent, being engaged for three years in the conduct of Government expeditions to Alaska and traveling widely through that territory in the investigation of its mineral resources. His report on the Mineral Resources of Southwestern Alaska contains the fullest information yet available on that part of the territory. For many years he has been actively engaged in the work of the United States Geological Survey. He has written extensively, both for the Government and for various scientific and educational journals. His *New Geography*, constituting Book Two of the Frye-Atwood Geographical Series, is receiving the cordial endorsement of educators both in this country and abroad.

HELEN GOSS THOMAS

is a graduate of Wellesley College, where she was formerly an instructor in the Department of Geography. During the last five years she has been a research associate with President Atwood in geographic investigation. She is the author of many important geographic articles, and has been engaged for a number of years in university extension work in geography for the teachers of Boston and vicinity.

DOUGLAS CLAY RIDGLEY

received the degree of Bachelor of Arts from Indiana University. He has been a teacher of geography in the West Division High School of Chicago, has been principal of a Chicago Grammar School, and has been engaged in extension work with teachers of geography in Springfield and Peoria, Illinois. He is now Professor of Geography and Head of the Department of Geography at the Illinois State Normal University. He is the author of a volume recently published on the Geography of Illinois.

CHARLES FRANKLIN BROOKS

received his bachelor's degree and his doctor's degree from Harvard University. He was formerly an instructor in the Department of Geography at Yale University, and was for

several years in the service of the United States Weather Bureau. He is Secretary of the American Meteorological Society.

PRESTON EVERETT JAMES

received his bachelor's and his master's degree from Harvard University, and was for two years an assistant in the Department of Geology and Geography there. He is a member of the U. S. Geological Survey and has assisted President Atwood in his Survey field investigations. He has recently traveled through the northern countries of South America.

THEODORE COLLIER

is a graduate of Hamilton College, from which he received his bachelor's and master's degrees. He is also a graduate and fellow of Union Theological Seminary. He received his doctor's degree from Cornell University, where he was President White Fellow in History, and has studied abroad in the Universities of Berlin and Marburg. He was formerly Professor of History in Williams College, and since 1911 has been Professor of History at Brown University, where he is head of the Department of History. He is a member of various historical societies and of the American Society of International Law. He has contributed to professional periodicals and to the eleventh edition of the *Encyclopedia Britannica*. He was overseas with the 26th Division, A. E. F., in 1918-19, and has given special attention to the history of the World War.

HARRY ELMER BARNES

received his bachelor's degree from Syracuse University, and his doctor's degree from Columbia, and has given instruction in history at both these institutions. He taught at Clark in 1918-19; held a professorship in history at the New School for Social Research in New York City the following year; and was recalled to Clark in the fall of 1920. In the course of a very active academic career Professor Barnes has been engaged in a number of important tasks outside the institutions in which he has been a teacher. He was historian to the New Jersey Prison Inquiry Commission in 1917, and to the Pennsylvania Penal Commission in 1918. He has written voluminously on historical and sociological topics, and has had extensive experience as a summer school lecturer, having been engaged in summer school work at Syracuse University, the University of Montana, and the University of Oregon. At the latter institution he was Assembly Lecturer during the summer of 1920.

FRANK HAMILTON HANKINS

is a graduate of Baker University, and did his postgraduate work at Columbia, where he received the degree of Doctor of Philosophy. He came to Clark in 1906, and in 1908 became head of the Department of Political and Social Science. Since then he has been actively engaged in both graduate and undergraduate teaching, and has written and lectured extensively. He spent 1920-21 in Europe on leave of absence. During this time he held an American Field Service Fellowship in French Universities, and a Lectureship under the Institute of International Education, in accordance with the terms of which he lectured for a period of two months at the *École libre des sciences politiques*, in Paris. He was able also to visit England for several weeks and to make a first-hand study of postwar conditions in Germany and Italy.

EDMUND CLARK SANFORD

received his bachelor's degree from the University of California and his doctor's degree from the John Hopkins University; he has been connected with Clark University almost since its founding. After twenty years of service in the Graduate Department of Psychology, during part of which time he gave undergraduate instruction also, he became President of Clark College in 1909, retiring in 1920 to become Professor of Psychology and Education. He was President of the American Psychological Association in 1902, and is the author of *A Course in Experimental Psychology*, as well as numerous papers on psychological subjects.

HARVEY SNYDER GRUVER

received his A. B. at Otterbein University and his A. M. at Harvard. He was Superintendent of the High School at Worthington, Ohio, for eight years, at Walpole, Massachusetts for one year, and at Methuen, Massachusetts for two years. He was for six years Assistant Superintendent of Schools at Indianapolis. Since 1918 he has been Superintendent of Schools in Worcester. He has had wide experience in summer school work, having been special lecturer and instructor during various summers at the Indiana University Summer School, the Colorado State Teachers College, and the Northern Arizona State Normal School.

LORING HOLMES DODD

received his bachelor's degree at Dartmouth, his master's

degree at Columbia, and his doctor's degree at Yale. After considerable experience as a teacher of English in secondary schools, in 1910 he came to Clark, where he has distinguished himself particularly by the thoroughly practical character of his work with undergraduates. He is keenly interested in art and drama, and has lectured on literary topics before various organizations in the city. He is the author of a very useful textbook on Everyday Rhetoric.

ROBERT STANLEY ILLINGWORTH

is a graduate of Clark College, and has studied at the Sargent School of Dramatics in New York City. He is Dramatic Coach at Lafayette College, and head of the newly-established Department of Public Speaking. He has lectured extensively on the drama throughout the Middle Atlantic States, and has lectured by invitation at Princeton and Lehigh Universities on the drama and the presentation of plays. The Dramatic Association of Lafayette College, whose work is under his immediate supervision, gives some twenty plays away from home during the year.

PHILIP HUDSON CHURCHMAN

is a Bachelor of Arts and Master of Arts of Princeton University, and received his doctor's degree at Harvard, after a considerable period of study at the Universities of Paris and Grenoble. He spent two years in secondary school instruction, and was instructor in French at Princeton and in Romance languages at Harvard. His service as a teacher of Romance languages at Clark dates from 1908. His research work has included a special study of English influences in Spanish romantic literature, upon which he has written extensively. He is the editor of an edition of Valdés's *La Alegría del Capitán Ribot*, and has published books on French sounds and pronunciation.

GUSTAVUS L. SPILLMAN

is a native of Switzerland, born in Zürich, where he attended the public schools. His higher education was obtained at the Central Normal College at Danville, Indiana, at Indiana University, where he received the degrees of A. B. and A. M., and at the University of Chicago. He has been head of the Department of German at the University of Louisville since 1907.

Courses of Instruction

Courses marked with an asterisk may be taken for graduate credit.

GEOGRAPHY

SS122. The Passing Weather. Daily observation, interpretation and prediction of local weather. Physical properties of the atmosphere. The elements, temperature, pressure, winds, and moisture, of the atmosphere, and their interrelations in various types of weather. How to read and use the weather map. The present status of weather forecasting. Frost, storm, and flood warnings; the work of the United States Weather Bureau. The weather factor in agriculture, commerce, aeronautics, and public health.

Daily, except Saturday, at 8.

MR. BROOKS

SS141. Physiography (Introductory course). This study is sometimes called Physical Geography. The course will be conducted as largely as possible in the field, where actual conditions will be examined and where the general principles of the science will be illustrated. It will include an analysis of the origin and history of land forms, and their more fundamental effects on man. When taken with the study of the air (Geography SS122) a broad, fundamental basis for other studies in geography may be secured.

Daily, except Saturday, at 1.30.

MR. JAMES

SS161. The Teaching of Geography in the Elementary School. This course is designed for teachers and prospective teachers of geography in the elementary schools. The scope and purpose of geography in the grades is set forth, various methods of teaching are presented, and the appropriate use of each is considered. The use of the text book, supplementary readers, outline maps, and illustrative materials are discussed. Although the course deals with all the grades in which geography is commonly taught, teachers are given opportunity to make a special study of work suitable to their grade. Teachers should bring with them both text books of the series used in their schools.

Daily, except Saturday, at 12.

MR. RIDGLEY

*SS212. Geography of North America. The fundamental basis for the subdivision of the continent into natural regions

will first be treated and later the analysis of the geography of each one of the natural regions will be presented. The study will start with a consideration of natural regions on the Atlantic border and will proceed westward, northward, and southward, until the geography of the entire continent will be presented as fully as possible in the time available. The physical features, the climate, the natural resources, the social environment, and economic conditions will be considered as factors influencing the settlement and industrial development of the different countries.

Daily, except Saturday, at 11.

MR. ATWOOD

*SS213. The Regional Treatment of Geography. A brief sketch of the history of the study of geography will suffice to demonstrate the necessity of some plan or plans for the scientific and pedagogic organization of the subject matter. Physiographic, climatic, vegetal, economic, and natural regions have been proposed as the basis of organization. The educational and scientific advantages of the various plans will be considered and illustrated by examples from various parts of the world.

Daily, except Saturday, at 10.

MR. ATWOOD

*SS224. The Influence of Climatic Environment. Although this course deals primarily with climates and how they affect man and his means of livelihood, its first part necessarily comprises general climatology, i. e., the climatic elements and their combination into such types as marine, continental, and mountain climates. The climates of the world are studied in a comparative way, especially to make manifest the similar human responses to similar climates in widely separated parts of the world, and local peculiarities and effects. Changes of climate in geological and historical time, and their importance in man's development and migrations are discussed.

Daily, except Saturday, at 1.30.

MR. BROOKS

*SS241. Geography of South America. This course will analyze the conditions of environment and history which have resulted in the present political and social status of South America. It will be designed especially for teachers who desire to increase their information concerning this little-known, but exceedingly important sister continent of the western hemisphere. Comparison with familiar points in the United States will be made frequently throughout.

Daily, except Saturday, at 9.

MR. JAMES

*SS251. The Natural Resources of the United States and Their Conservation. An introduction to Economic Geography. This course will include a study of the extent, distribution, and value of the soils, forests, fuels, minerals, and waters of the United States, with special emphasis on the ways in which they should be used that they may serve the largest number of people for the longest possible time. The work will be presented in such a way as to be especially valuable to teachers who are conducting courses in the geography of the United States, or in economic and commercial geography.

Daily, except Saturday, at 11.

MRS. THOMAS

*SS252. The Geographical Changes Resulting From the World War. This course has been planned to cover systematically the changes in political boundaries in Europe, Asia, and Africa which have been wrought by the World War and by the peace treaties which brought it to a close. It will include a study of the geography and ethnography of Central and Eastern Europe as a basis for an understanding of the comparative assets and liabilities of the new nations which have been carved from the former empires of Russia, Austria-Hungary, and Germany. The disposition of the former German colonies in Africa and other parts of the world will be treated, and special attention will be given to their economic and strategic value to their new owners. The course will be concluded with a brief study of the geographic reasons underlying the desires of the European powers for spheres of influence in Asia.

Daily, except Saturday, at 9.

MRS. THOMAS

*SS261. The Teaching of Geography in Normal Schools and Teacher-Training Colleges. This course is planned to meet the needs of normal school teachers, city grade supervisors, principals, teachers preparing for critic positions in normal schools, and for experienced teachers of geography. Geography courses, required and elective, in teacher-training institutions are studied. The relation of normal school courses to the teaching in the elementary school is considered. Cooperation between the geography department and training school is discussed. The opportunity of the supervisor to strengthen the geography teaching in a school system is pointed out. The course deals with the broad field of training and supervision of teachers of geography.

Daily, except Saturday, at 8.

MR. RIDGLEY

*SS313. Research in Regional Geography. For students who are prepared and ready to undertake thesis work in partial fulfilment of the requirements for a graduate degree.

Hour to be arranged.

MR. ATWOOD

*SS323. Research in Climatology. For students who are prepared and ready to undertake thesis work in partial fulfilment of the requirements for a graduate degree.

Hour to be arranged.

MR. BROOKS

HISTORY

*SS6. The World War and its Aftermath. The course will begin with a comprehensive survey of the main lines of European policy during the quarter century preceding the War, noting the successive stages in the development of the forces that were destined to bring the nations into collision,—commercial rivalry, colonial expansion, naval and military competition—and the growing tension in the relations of the Great Powers as evidenced by recurring crises, culminating in the cataclysm of 1914. In the study of the War itself, which will occupy, perhaps, one-third of the whole time of the course, military events, while receiving due attention, will be treated rather summarily, and the major emphasis will be laid upon the political, diplomatic, and economic factors of the struggle, and upon the considerations that influenced and determined the policies of the various states, whether to participate or to remain neutral. The Conference of Paris and the treaties of peace will be studied in detail; and the course will conclude with an appraisal of the effects of the War—territorial, political, economic, and social—an analysis of the principal problems of reconstruction, and a survey of existing conditions.

Daily, except Saturday, at 11.

MR. COLLIER

*SS7. The Historical Roots of the Russian Revolution. A study of the underlying and remoter causes of the Russian Revolution, considered, not as an accident of the War, but as the consummation of an evolutionary process, as the logical product of subversive forces, political, economic, intellectual, long working in Russian society to undermine the Czaristic regime and to prepare the way for a new order. The course will begin with a cursory survey of political institutions and social conditions in Russia at the opening of the nineteenth century, and a brief account of the tentative reforms of Alexander I and of his subsequent reaction. From this point the narra-

tive will become somewhat more detailed. Among the principal topics to be treated are: the Decembrist insurrection; the Polish rising; the despotic rule of Nicholas I; economic changes and the problem of the peasantry; symptoms of discontent among the intellectuals; the emancipation of the serfs, and abortive legal and administrative reforms, by Alexander II; Nihilism and Terrorism; the oppressive rule of Alexander III; industrial developments and social effects; the Russo-Japanese war and the October Revolution; the Duma, and the rise of radical political parties; the Bureaucracy and the War; the overthrow of the Czardom and the bourgeois revolution; the November revolution and the Soviet regime.

Daily, except Saturday, at 12.

MR. COLLIER

*SS8. The Development of American Society. This course will endeavor to present the history of the United States from the standpoint of the newer tendencies in historical interpretation. It will deal primarily with the economic and social factors in American development, and indicate the manner in which the political and constitutional growth has been a reflection of these deeper forces. The topics about which the course will be organized for study and discussion are:—(1) the expansion of Europe and the colonial movement; (2) the economic and social background of American independence and the federal constitution; (3) the triumph of Jeffersonian democracy; (4) the coming of the Industrial Revolution, the westward movement and the rise of Jacksonian democracy; (5) the economic and social factors in the sectional struggle and the Civil War; (6) the economic and social results of the period of the Civil War and reconstruction, and the rise of the plutocracy and *laissez-faire*; (7) the rise of various movements designed to secure economic, social, and political reform through voluntary activity or the increase of state control; (8) the economic and social phases of modern imperialism and the World War; (9) the evident results of the World War on the United States. Lectures will be supplemented by class-room reports and discussion. The outline for the course is provided in Max Farrand's *Development of the United States*.

Daily, except Saturday, at 9.

MR. BARNES

*SS9. The Intellectual Background of Modern Society. This course will set forth the chief phases of the intellectual history of modern times. It is designed as a general cultural course and as an aid to those interested in the history of science,

philosophy, education, and social science. It will analyze the beginnings of experimental science and the criticism of social institutions; the intellectual aspects of Humanism and the invention of printing; the general cultural results of the Protestant Reformation; the intellectual consequences of the expansion of Europe; the development of the philosophical justification of the new inductive and experimental method in the writings of Bacon and Descartes; the remarkable scientific achievements of the seventeenth century; the reaction of the discoveries and the new science upon European thought; the rise of Deism and the critical philosophy; the development of a theory of progress; the reaction against the critical thought of the eighteenth century; and the significant intellectual problems of modern society—evolution, industrialism, nationalism, democracy, social reform, education, and conservatism. The guide for the course is J. H. Robinson's *Outline of the History of the Western European Mind*. This course corresponds to the second semester of History 217, as described in the general catalogue of the University.

Daily, except Saturday, at 8.

MR. BARNES

SOCIAL SCIENCE

SS1. Introduction to the Social Sciences. The main purpose of this course is to give a rather broad survey of some of the main features of human evolution from prehistoric times to the present. Among the points of emphasis are: great steps in evolution; origin of man; races of men and their diffusion; the beginnings of society and the main stages in social evolution; the beginnings of the state, of law and property; the development of economic life; present day problems of industry, politics, and world unity; the role of geographical, biological, and psychological factors in social life. The course lays a foundation for further study in politics, economics, and sociology.

Daily, except Saturday, at 11.

MR. HANKINS

*SS2. Teaching the Social Sciences. This course will be conducted very largely on the seminar plan and only in part by means of lectures. It is planned to study every phase of the general topic that proves of interest to members of the class. After some investigation of the present position of history, economics, and civics in secondary school curricula, and a discussion of the educational aims of social science courses, special attention will be given to such questions as the

following: What constitutes an ideal distribution of social science studies throughout the school course including high school and college? What should be the content of secondary school and college courses in these studies? What are the relative merits of different methods of presentation? etc.

Daily, except Saturday, at 9.

MR. HANKINS

PSYCHOLOGY

SS1. Educational Psychology. A sketch of normal human development from birth to the end of the school and college period together with an examination of the psychological principles underlying the learning process. The central thought of the course is the conviction that education is an effort to facilitate and to modify a more or less natural process of growth, and can be carried on most intelligently when the facts and principles of mental and physical growth are clearly kept in mind and when the effects of educational means and methods are most fully understood. The course will be given by means of lectures, collateral reading, and discussions.

Daily, except Saturday, at 11.

MR. SANFORD

EDUCATION

*SS3. Principles of Education. The main objectives of public education will be discussed in detail under the following heads: the civic, health, cultural, and vocational. Closely related to this will be discussion of the fundamental principles governing the formation of the school curriculum with special reference to a democracy. The necessary reading for the course will not be confined within narrow limits. Each individual will be allowed to read along the line of his personal interest. Reports of readings will be required and special reports on the various phases of the subject involved will be given by different members of the class. Every attempt will be made to adapt the work of the course to individual requirements.

Daily, except Saturday, at 8.

MR. GRUVER

*SS4. Organization, Administration, and Supervision. Fundamental problems of organization and administration of public schools will be studied. As much liberty will be granted to each member of the class in reference to prescribed reading as is consistent with the general purposes of the course. Each member will be given an opportunity to make a report on the phase of the problem in which he is most interested. The main emphasis of the course will be the qualifications and

duties of the supervisor. This will be discussed in the main in reference to the relationship of such an officer to the various members of a public school organization, as, for example, his relation to the school committee, the superintendent, teachers, pupils, and parents. The qualifications of a supervisor will likewise be discussed in detail as to his training and personal qualities. The ends to be accomplished through supervision will also be an important phase of the course.

Daily, except Saturday, at 9.

MR. GRUVER

ENGLISH

*SS3. Modern Verse. Beginning with Whitman the course will pass to a study of the principles and tendencies of modern verse as exemplified by the chief American and English poets of today.

Daily, except Saturday, at 9.

MR. DODD

*SS4. Modern Drama. Beginning with Pinero and Wilde the course will pass to a study of the chief contemporary dramatists of England and America.

Daily, except Saturday, at 10.

MR. DODD

SS5. Dramatics. Amateur and educational dramatics in schools and colleges. The selection and staging of plays; the building of scenery; stage make-up. During the course at least one public performance will be given; rehearsals will be conducted during the regular periods by members of the class. The work will through conferences be directed to meet the individual needs of the students.

Daily, except Saturday, at 11.

MR. ILLINGWORTH

FRENCH

SS1. Elementary French. Foundation course for work in reading, writing, and speaking. Fraser and Squair's *Shorter French Course* will be used. The primary purpose of the course will be to develop the ability to read simple French, and the approach to the work will therefore stress knowledge of the *recognition* sort, limited to the understanding of exercises in French, independently of any *productive* knowledge of principles or vocabulary. Subsequently, in order to lay a foundation for writing and speaking ability, the earlier lessons of the book will be carefully reviewed, with emphasis on simple composition and oral exercises (i. e., a working knowledge of principles, vocabulary, and idioms). Pronunciation will be emphasized from the start, by imitation and simple dis-

cussion. Oral exercises will be liberally used, first in the "recognition" stage, later in the "productive" stage.

Daily, except Saturday, at 10.

MR. CHURCHMAN

*SS3. Advanced Pronunciation of French. (Primarily for teachers, present or intending, but not limited to them.) Assuming at least an elementary knowledge of the language, this course will proceed to make a careful study of the phonetic and orthographic principles which underlie a good pronunciation, touching somewhat upon the best ways of teaching the subject. Discussions, oral drill in the group, attention to individual difficulties, reading of phonetic texts, special study of difficult words and sentence intonation. Churchman and Hacker's *First Phonetic French Book*, Geddes's *French Pronunciation*, with incidental study of manuals and other useful books. If time and the interests of the class justify, some attention will be paid to the pronunciation of Spanish.

Hour to be arranged.

MR. CHURCHMAN

*SS4. Aims and Methods of Teaching French, with incidental attention to Spanish and German. (Primarily for teachers.) Lectures and collateral reading. Free discussion. In addition to the broad question of aim and method, these topics (among others) will be discussed by the instructor and the class: the preparation of the teacher for his work, the teacher and his books (reading and reference), the teaching of pronunciation, examinations and the marking system, the practical administration of a course, realia and allied material (in the Clark Pedagogical Museum), the teaching of French literature, bibliographical suggestions. In the reading the plan will be to proceed from the older standard works to those more modern, including articles in journals; parts of the following will be considered: *Report of the Committee of Twelve*, Bahlsen's *The Teaching of Modern Languages*, *Methods of Teaching Modern Languages* (13 authors), Krause's *The Direct Method in Modern Languages*, Bagster-Collins's *German in Secondary Schools*, Palmer's *The Scientific Study and Teaching of Languages*, Wilkins's *Spanish in The High Schools*. Special study of the British Report on Modern Languages.

Daily, except Saturday, at 11.

MR. CHURCHMAN

SPANISH

SS1. Elementary Spanish. Foundation course for work in reading, writing, and speaking. Hills and Ford's *First*

Spanish Course will be used; possibly also Hannsler and Parmenter's *Spanish Reader*. In method and spirit this course will resemble French SS1, the description of which should be consulted by those interested in particulars.

Hour to be arranged.

MR. CHURCHMAN

NOTE. Only two of the courses announced in French and Spanish will be given by Mr. Churchman, and the right is reserved to withdraw the two for which there is the smallest demand. However, should there be a large demand for all four, a second instructor *may* be secured, to give French SS1 and Spanish SS1.

GERMAN

SS2. Grammar Review and Reading of German Prose. This course is designed to meet the needs of students who have some knowledge of German and who wish to increase their ability to read with accuracy and ease. The reading will be accompanied by a systematic review of the essentials of grammar, with much oral and some written practice. The works read will depend on the ability and needs of the members of the class. The right is reserved of withdrawing this course if elected by less than ten students.

Daily, except Saturday, at 9.

MR. SPILLMAN

Requests for application blanks should be addressed to the Registrar; requests for further information to the

Director of the Summer School

Clark University

Worcester, Mass.

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